Site Inspection Report

Jasco Chemical Corporation
1710 Villa Street, Mountain View, CA 94042
(415) 968-6005

Dan Thomas, General Manager
Lois M. Conley, Owner

Prepared by:

WAHLER ASOCIATES

Geotechnical Engineers, Geologists and Hydrogeologists

June 1987

Appendix A: mostly Questa reports
App B: Wahler Soil Gas Report - 1/87
App-C: Phase I Hydrogeogic Investigation - Wahler 6/87

BRONSON, BRONSON, and MCKINNON

Bank of America Center

San Francisco, California 94104

Project JCO-104H

Wahler Associates

Geotechnical and Water Resources Engineering

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June 26, 1987
Project JCO-104H

Mr. James L. Jaffe
Bronson, Bronson, and McKinnon
Bank of America Center
San Francisco, CA 94104

Dear James,

Enclosed is a copy of the Jasco Chemical Corporation Site Inspecton Report. If you have any questions regarding the topics discussed in the report, please do not hesitate to call.

Sincerely,

WAHLER ASSOCIATES

Robert G. Breynaert
Project Manager

F. Homauounfar
Department Head,
Environmental Group

RGB:FH:11

1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303 • Telephone Number (415) 968-6250
Telex Number 4998623

1.0 INTRODUCTION

Jasco Chemical Corporation is a small business that has been in operation for over 35 years. It has been in its present location, 1710 Villa Street, Mountain View, California, since late 1976.

Jasco employs 27 people at the Mountain View site. The company is owned by Lois M. Conley, with gross revenues of $4,000,000 annually from the Mountain View operation. The land and buildings are owned by Harry M. Anthony. Jasco competes in an industry where the profit margin is low and individual products are sold at retail for a low price per unit.

Jasco can best be described as a chemical repackager and chemical specialty formulator. Jasco does not manufacture any chemicals or chemical products, but repackages or formulates products for retail sales. Its main customer base is do-it-yourself homeowners who refinish wood products such as furniture, home interiors, and some exteriors.

2. SITE CHARACTERIZATION

The Jasco site has historically been zoned and used for industrial purposes. It is 2.05-acres, bordered on the northeast by Central Expressway and the Southern Pacific Railroad, and on the remaining sides by residential units (see Figure 1).

The Jasco site was rezoned in December 1983 to residential. The property immediately southeast was previously occupied by Pacific Press as an industrial site occupying approximately 20 acres.

The actual plant, offices and storage area are set back on the property and occupy about 31,000 square feet of the 89,300 square feet which constitute the 2.05 acres. Approximately 66 percent of the site is vacant land.

The vacant land constitutes a considerable buffer zone between the plant and most of the surrounding residential area.

2.1 Site History and Description

The owner of the 1710 Villa Street land and buildings is Mr. Harry M. Anthony. Mr. Anthony leases the facility to Jasco Chemical Corporation.

The previous owner of the land and building was Tom N. Tibbs Co., a limited partnership. The limited partnership aquired the site in 1948 or 1949. More precise dates were not available as Mr. Tibbs is semi-retired and claims he has no more specific information.

The site was leased by the limited partnership to West Coast Doors from May 1954 through June 1975. West Coast Doors utilized the site to manufacture and paint commercial and residential doors. From June 1975 through November 1976, the site was vacant. Mr. Anthony aquired the site in November 1976, and Jasco began its occupancy in December 1976.

Jasco is located at 1710 Villa Street, Mountain View, California 94041 (Figure 1). Jasco's 1710 Villa Street facility is a combination of tilt-up concrete production area with a built-up roof. The production area (4,000 ft^2) is completely explosion-proof wired and heavy-duty sprinklered. The finished goods area (12,000 ft^2) is Butler-type construction with heavy-duty sprinklers and in-rack sprinklers for storage of flammable finished goods. Figure 1 shows the location of the Jasco property in relation to the Southern Pacific Railroad and Central Expressway, located north of the site, and Villa Street, to the south of the Jasco site.

The entire plant and offices are constructed on a reinforced concrete floor. The production, finished goods, and chemical storage areas are surrounded by a berm to prevent uncontrolled releases from entering the environment (Figure 2). The production area is separately bermed with a curb approximately 4 inches high (Figure 2). The warehouse area is separately bermed with a curb approximately 4 inches high around three sides with the non-curbed side floor sloped to the interior of the building. The drum storage area has a 10-inch reinforced concrete floor and is bermed with a curb approximately 7 inches high (Figure 2 and 3). Within the production area is a "clean room" which has a separate 6-inch high berm (Figures 2 and 3). Within the plant, the production area is segregated from the finished goods area by a ramp with automatically closing fire doors. Within the finished goods area, each product category (i.e., corrosives, oxidizers, and combustibles and flammables) is segregated and bermed to prevent intermixing if an uncontrolled release were to take place (Figure 3).

Jasco has been in operation at 1710 Villa Street, Mountain View, California since December 1976. The years of operation to date are 10, and 1987 is the 11th year of operation at the site. The site is accessible by a driveway from Villa Street and is fenced on 3 sides with an 8-foot high chain-link fence topped with barbed wire, with locked gates. The 4th side (facing the railroad tracks) is protected by the rear wall of the building (Figure 3).

Figure 3 displays the location of on-site chemical storage areas, underground tanks, fenced and gated areas, and doors. The table located in Section 2.3 shows the capacity, construction, age, contents, and date of installation of each of the underground tanks. In addition, Figure 3 shows the location of buildings and their use. Figure 4 displays the surface condition of outside as well as inside areas, whether covered by asphalt, concrete, dirt, or grass. Figure 2 shows the location of bermed areas, dry wells, the collection sump, the

surface drain, and surface drainage piping. Figure 3 shows in detail the configuration of the underground tank farm and associated piping. Figure 5 shows in detail, the configuration of the process and packaging equipment located in the production area.

2.2 Process Description

The production of Jasco products falls into two following categories, namely:

1. Repackaging of bulk chemicals into small containers
2. Blending of chemicals to produce proprietary products

The production process begins by receiving certain liquid chemicals in bulk, the rest in smaller drum lots and powdered raw materials in 50 pound bags.

All the raw materials used by Jasco are detailed in Table 1, along with approximate 1986 usage, area of storage, (see Figure 3), and maximum amount stored at a given time.

Bulk solvents are received in tankers and stored in eight underground tanks as detailed in Figure 3. Prior to about June 1985, Tank #3 was used to store pentachlorophenol which was an ingredient of a wood preservative formerly produced by Jasco. The product was discontinued in July 1985, and the tank was converted to the storage of paint thinner. All other underground tanks have contained the same solvents as shown on Figure 3 since Jasco began operations at the Villa Street site.

Filling of the underground tanks is done by gravity. A hose from a truck-tanker is extended into the filling hole of the tank. Extreme care is exercised to prevent dripping of the hoses prior to, during, or after unloading the solvents.

Jasco has seldom filled any of its tanks to more than 60-70 percent of the tanks' capacity so as to eliminate the chance of overfilling.

The tanks are checked with a dip stick at least twice a week. This procedure is used to determine the quantity of material remaining in the tank and used as a basis for ordering additional solvents.

The procedure of dip sticking is based on the premise of a known volume in a particular tank and a stick graduated in inches. When the stick is inserted into the tank to the bottom and removed, the portion which is wet then indicates the volume of material remaining in the tank. This procedure is commonly used by chemical companies, gasoline stations, etc., to determine the amount of material remaining in a tank.

The dip sticking procedure, as described above, is used as a basis for reordering additional solvents. The dipstick measurements are used only to make sure that when additional solvent is received, the tank is not filled beyond the 60-70 percent of its capacity. The procedure would not be accurate enough to be used for determining miniscule losses of solvent. It would be accurate enough to identify gross discrepancies. However, records of meter readings have been maintained on all bulk solvents used since 1984. These readings are compared to delivery quantities. This method is much more precise in identifying discrepancies. No discrepancies have been observed either in the dipstick testing or in the records of meter readings.

The physical characteristics of the loading and unloading areas are a combination of asphalt and concrete and are detailed on Figure 4. The location of drains, drainage piping, dry wells, and the on-site sump are detailed on Figure 2.

The solvents are pumped by suction to either the filling machine or to blending tanks through above-ground piping inside the bermed production area (Figure 5).

Other non-bulk chemicals are added to the blending tanks in the proper proportions to produce a given Jasco proprietary product.

The repackaging process consists of taking bulk materials and repacking them into small containers for retail sale. Generally pints, quarts, gallons, five gallons, and a few fifty-five gallon containers are used.

Located in the bermed production area (Figure 5), the blending process consists of taking combinations of chemicals and mixing them in blending tanks, then packaging the materials into small containers for retail sale.

The materials are filled into small containers on the filling line (Figure 5) (i.e., pints, quarts, gallons), are capped and placed into cardboard cartons and taped closed. The cartons are placed onto pallets. The pallets are then moved to the finished goods storage area (Figure 3). Orders are pulled from the finished goods storage area and shipped to customers via common carrier, customer pick-up, or Jasco delivery truck. The chemical repacking and blending processes and equipment have remained unchanged since Jasco began operations at 1710 Villa Street. See Exhibit A for a listing of Jasco Products.

In June 1983, Jasco altered the above-ground piping in the production area. The alteration in piping consisted of adding another common manifold and piping to segregate compatible solvents (Figure 5). Prior to the change, all the solvents went through a common manifold. This change allowed Jasco to accumulate line washings for reuse.

In October 1984, Jasco installed a piece of equipment to produce putty products which were newly added to the product line. The putty mixer (Figure 5) manufactures products which are over 85 percent filler pigment-type material (i.e., calcium carbonate; calcium sulfate) along with small quantities of either linseed oil or soy bean oil.

In 1981, Jasco installed a class 100 cleanroom (Figure 3) in its production area to produce filtered chemical products via the same manufacturing procedures previously described. The cleanroom is also bermed and heavy-duty sprinklered.

All the above-ground tanks, putty mixer and filling machine are contained in an area that has a reinforced concrete floor with the entire perimeter bermed and exits ramped so that if all the mixing tanks were to sustain an uncontrolled release simultaneously, the entire contents would remain within the production area.

The construction of the site is such that even prior to berming the reinforced concrete floor, the reinforced tilt-up concrete walls and ramps provided containment of an uncontrolled release from escaping from the production area.

The installation of the berms and increasing the height of the ramps at the exits, in 1983, was done to provide an additional safeguard and to increase the volume of the containment area. This addition was not at the request of the RWQCB staff, but on Jasco's desire to increase safety precautions.

The condition of the reinforced concrete floor is solid with occasional hairline cracks, as would occur in any concrete floor over time. There are no worn areas.

Inspection of the meters, distribution piping, valves, tanks, and filling machinery for leaks is done on a daily basis. This daily inspection procedure is possible due to the limited amount of equipment, piping, valves, and tanks which exist, and the fact that there is constant, daily contact with these items by both production workers and management. The production workers that perform the inspection have, on average, over 8 years' experience working at the

Jasco facility. The production workers are instructed to report on a daily basis, any abnormalities they observed. The production workers have been, and continue to be made cognizant of safe working procedures.

Lubricants are used in the moving parts of the mixers in the blending tanks, the filling machine, the capping machine and the putty mixer. The lubricants consist of small quantities of motor oil. Again, these pieces of machinery are located in the bermed production area so the lubricants cannot escape to the environment.

The above-ground processing tanks are discussed below.

ABOVE-GROUND PROCESSING TANKS

Tank #	Capacity	Construction	Age	Contact Chemicals[1]	Average Use Freq. Per Week[2]
1	2,500 gal	316 stainless steel	18 yrs	H_2O,4,61,72,77	2
2	2,500 gal	316 stainless steel	18 yrs	2,16,17,33,34, 35,36,37,38,39, 41,51,65,97	2
3	1,321 gal	mild steel	20+yrs	4,56,58,59,71, 89,H_2O	3
4	1,100 gal	cross-linked polyethylene	11 yrs	1,3,5,7,8,25,26, 32,45,49,56,62, 66,87,89	3
5	500 gal	mild steel	Unknown, purchased and used in 1984	13,14,16,17,20, 21,30,43,65,75, 76,78,79,82,83	2

[1]See Table 1 for description.

[2]Frequency of use does not imply that each chemical listed is in contact with the tank at the same time, since a variety of products are produced in the tank.

The production area diagram gives the specifics on the production process (Figure 5).

2.3 Waste Management Practices

With the 1983 change in production piping, Jasco is now able to use all product (raw material) by using a residual from one packaging run in a later packaging run. This is accomplished as follows:

1. When one run is finished, the lines are cleaned and material from the lines are stored in 55-gallon drums in the drum storage area;

2. When the same, or a compatible material, is packaged, the stored material is taken from the drum storage area and used.

With this practice, instituted in 1983, Jasco has been able to eliminate the generation of waste.

Prior to 1983, two waste hauling companies were used; South Bay Chemical Co., and IT Transportation. Jasco has always been a very small operation and the following dates comprise all of the waste hauling performed back to 1980. Prior to 1980, there are no records available.

IT Transportation	12-5-80	3,353 gal	[1]Mineral spirits, kerosene, acetone, lacquer thinner
IT Transportation	4-20-81	3,363 gal	Same as above
South Bay Chemical	7-9-82	1,375 gal	Methylene chloride, toluene sulphonic acid
South Bay Chemical	10-14-82	2,857 gal	Same as above
South Bay Chemical	12-14-82	2,045 gal	Mineral spirits, water
South Bay Chemical	1-25-83	2,000 gal	Methylene chloride, toluene sulphonic acid

[1] exact percentages are not known.

Storage and process areas have reinforced concrete floors and are bermed (see 2.1).

Minor spills (i.e., 1/2 pt, pt, qt, gallon) have occurred infrequently by mishandling on the filling line. These spills are immediately cleaned by the use of absorbant and placed into a drum for reclamation.

There was a spill on the concrete portion of the loading area in February 1987. The spill was a 55-gallon plastic drum containing methylene chloride. The spill was reported, and cleaned up by the use of an absorbant within 10 minutes. Mr. Russ Frazer of the Hazardous Chemical Section of the City of Mountain View Fire Department inspected the clean-up and determined that none of the material had escaped from the site.

No other spills of "clean" or waste product are known to have occurred.

UNDERGROUND STORAGE TANKS

Tank#	Capacity Gallon	Construction	Age (Yrs)	[1]Contents	Date of Installation
1	12,000	*	10	Methylene Chloride	12/76
2	10,000	*	10	Paint Thinner	12/76
3	6,000	*	10	Paint Thinner	12/76
4	6,000	*	10	Denatured Alcohol	12/76
5	5,000	*	10	Methanol	12/76
6	6,000	*	10	Deodorized Kerosene	12/76
7	5,000	*	10	Lacquer Thinner	12/76
8	5,000	*	10	Acetone	12/76
9[2]	500	Unknown	Unknown	Diesel	Unknown

* Single wall mild steel, tar wrapped

[1]All tanks except Tank #3 have contained the same solvent from date of installation to present. Tank #3 contained pentachlorophenol from date of installation until July 1985. In July 1985, the tank was converted to containing paint thinner.

[2]Tank was on premises when Jasco began operation at the site. A contract for the installation of an Azonic vadose monitoring system was initiated in December 1986. When the current situation becomes more clearly defined, the vadose system will be installed. Until then, ground water wells are being used to monitor the underground tanks.

There are no known areas which were or are used to dispose of any material.

Jasco does not have waste tanks, but does have eight (8) underground storage tanks (Figure 3), which were installed in 1976 (see Table on previous page). These tanks vary from 5-12,000 gallon capacity. Tanks numbers 1 and 2, and the associated piping, were pressure tested, (November 1986, number 1, July 1984, number 2) and found not to leak. All tanks are tested by dip stick at least twice a week. The tanks are tar-wrapped, single-wall mild steel construction. There is one below-ground diesel fuel tank of unknown size (probably less than 500 gallons) that was on-site when Jasco moved into the facility in 1976 (Figure 3). This tank has not been used in the past several months.

Flammable materials are properly stored (see Section 2.1).

There has not been any known dumping or contamination of sewers or storm drains.

2.4 Permits

Jasco possesses RCRA Generator I.D. number CAD009103378. No expiration date is shown on the document. Jasco has no need to obtain a RCRA TSD permit.

Jasco picks up drums of spent material containing methylene chloride from its industrial customers and stores the drums in the bermed drum storage area (Figure 3). Romic Chemical Co., periodically picks up the accumulated product and reclaims the methylene chloride for reuse by Jasco. The California Department of Health Services (DOHS) has stated that this material is not regulated as a waste (Exhibit B).

Jasco has been cited by the Bay Area Air Quality Management District pursuant to Regulation 8, Rule 5, Section 301 for failure to have submerged filling pipes on the lacquer thinner and acetone underground tanks. The violations were remedied within 3 days.

Jasco has been requested by the RWQCB staff to submit a storm water runoff management plan by August 3, 1987. The plan will address the permit to discharge storm water runoff to the City of Mountain View sanitary sewer.

2.5 Remedial Action

In June of 1984, Jasco Chemical Corporation retained Questa Engineering Corporation to perform a preliminary ground water investigation at the Jasco site. During the preliminary phase of the investigation, three A-Aquifer monitoring wells, V-1, V-2, and V-3, were installed on-site. Chemicals of the same type that are stored at the Jasco site were detected in the soil and ground water during this phase of the investigation (Table 2). Copies of the four reports submitted to Jasco by Questa Engineering are included in this report as Appendix A.

Wahler Associates were retained by Jasco during December of 1986, to continue the prelmiinary investigation at the Jasco site. On December 19, 1986, Wahler Associates conducted a shallow soil gas investigation both on and off the Jasco site. The purposes of the investigation were to, 1. determine the spatial variation of chemical concentrations in the vadose Zone and, 2. gain additional information to aid in properly siting future monitoring wells. Chemicals were detected in the vadose zone both on and north of the Jasco site. A copy of the draft report summarizing the results of the soil gas investigation is enclosed as Appendix B.

A Phase I hydrogeologic investigation has been performed at the Jasco facility by Wahler Associates. A report describing the work performed, the methods of analysis, and results of the investigation was submitted

to the California Regional Water Quality Control Board (CRWQCB) on June 5, 1987. A copy of the report is enclosed as Appendix C. Four A-aquifer and one B_1-aquifer monitoring wells were installed as part of the Phase I investigation -- V-4, V-5, V-6, V-7, and I-1. No chemicals were detected in well V-5, located at the northeastern corner of the Jasco site (Table 3). Chemicals were also not detected in well V-6 located northwest of the site on Southern Pacific Railroad property (Table 3). Concentrations of volatile organic compounds totalling 131.7 ppb were found in well V-7 located 133 feet down-gradient of the Jasco site on the median strip of the Central Expressway (Table 3). Ground water analysis results from well V-2 were also reported in the Phase I report. Over a 2.5-month period, an 1,800 percent decrease in total volatile organic compounds was observed in well V-2 (Table 3). The decrease in chemical concentrations observed in well V-2 can be attributed to ground water removal from wells V-2 and V-4. Ground water removal from well V-2 was initiated on February 20, 1987, and ended on April 10, 1987. Ground water was discharged into the City of Mountain View Sanitary Sewer as described in Appendix D. A 1.5-inch diameter bladder pump followed by a Berkeley jet pump were used to remove the ground water. Removal rates varied between 0.5 and 1.5 gpm. Daily water removal records were not kept during the seven weeks ground water was removed from well V-2. Four-inch diameter well V-4 was installed on April 2, 1987, for the purpose of increasing the rate of ground water removal from the A-aquifer. Ground water samples from well V-4 were tested for purgeable halocarbons using EPA Method 601 on two occasions; once before initiation of ground water removal and once during ground water removal. The analysis results are summarized in Table 3. Table 4 contains daily ground water removal data from well V-4. Appendix D contains the correspondences between Jasco and the City of Mountain View pertaining to permitting ground water removal from wells V-2 and V-4.

Appendix E contains two quarterly reports submitted to the CRWQCB. The quarterly reports contain ground water elevation data and A-aquifer potentiometric surface maps.

3.0 ENVIRONMENTAL SETTING

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3.1 Physical Surroundings

The Jasco site is located on a gently sloping alluvial plain which terminates at San Francisco Bay, approximately 4.5 miles to the north of the site. The foothills of the Santa Cruz Mountains begin approximately 5 miles south-southwest of the site. Permanente Creek, a northward flowing, concrete-lined and channelized stream is located approximately 600 feet to the west-northwest of the site.

The area in the immediate vicinity of the site is primarily residential. Within a one-mile radius of the site, there exists a mix of light industrial, commercial, and residential areas.

The site is bordered on three sides by apartments and on the northeast side by the Southern Pacific Railroad and Central Expressway (Figure 1). Prior to 1985, Jasco was bordered to the east by Pacific Press, a printing facility, and Peninsula Tube Bending. The City of Mountain View, in which the Jasco facility is located, has a total population of approximately 62,000 people. The nearest off-site buildings are residential and located approximately 25 feet from the property line on the northwest side. The other sides of the property have a buffer zone of vacant land between Jasco and any residences.

There are no local environmental receptors within 1 mile of the Jasco facility. In light of the extremely gentle ground water gradient in the area (.005-.008 ft/ft), a one-mile distance from the site is a reasonable upper bound for the discussion of impacts upon local environmental receptors. Local ground water velocity is estimated to be in the range of 24 to 80 feet/year, thus the 1-mile distance to local environmental receptors is greater than chemicals have been expected to travel.

The general climate of the area could be classified as Mediterranean to semi-arid. Precipitation occurs mainly from November through March, with some amounts occurring in October or September. Precipitation near the site averages approximately 15 inches per year, while evaporation averages 60-70 inches per year. Thus net precipitation is a minus 45 to 55 inches per year.

The on-site activities at Jasco, which began in December, 1976. have had no visible effects on the land, plants, or animals in the local area. Most of the land area around the site is occupied by buildings, railroad tracks, and local roadways.

3.2 Geology

The subsurface at the site and in the general region consists of interbedded silts, sands, gravels and clays characteristic of alluvial and fluvial environments. The unsaturated zone, which reaches to a depth of approximately 23 feet at the Jasco site, consists mainly of silty clay of relatively low permeability (10^{-6} - 10^{-7} cm/s). A two-foot thick layer of sandy gravel occurs underneath the site at a depth of 14-16 feet. Material from 15 to approximately 30 feet consists of silty to sandy clay. Below approximately 30 feet is the A-Aquifer. Depth to bedrock in this region is on the order of hundreds of feet. This thickness of sediments is the result of thousands of years of deposition in the Santa Clara Valley of eroded material from the Santa Cruz Mountains to the west and the Diablo Range to the east.

The surface at the site is virtually flat. The general slope of the local area is extremely gentle towards San Francisco Bay, or in a north-northeasterly direction.

3.3 Hydrology

3.3.1 Surface Water

A portion of the runoff from the roof of the on-site production/warehouse building and the paved area inside the fenced portion of the site discharges into a drain located at covered storage area number 1 (Figure 2). The drain empties into a pipe which runs beneath the warehouse and shipping area to the rear yard area at the northern boundary of the site (Figure 2). The drainage pipe then discharges into a east-west trending corrugated steel pipe which outlets off the northwest corner of the site, adjacent to the Southern Pacific Railroad Line (Figure 2). Here the discharged water ponds and either evaporates or infiltrates into the soil.

The balance of the runoff from the roof of the production/warehouse building and the paved areas inside of the fenced portion of the site discharges into two dry wells located just south of the warehouse and shipping area (Figure 2). No records exist that describe the construction specifications of the dry wells. The depth of the dry wells are unknown. Through visual examination, it was determined that each of the dry wells consists of a two-foot square concrete-lined excavation (catchment basin) of unknown depth, which is connected to the dry well proper by a six-inch diameter horizontal pipe. The dry well proper is not exposed at the site, so details of its construction are not known. Surface runoff first drains through a steel grate into the catchment basin. When the catchment basin is filled with water, the runoff then drains into the dry well proper through the six-inch pipe which is kept capped.

Jasco has taken specific action to prevent surface water runoff from discharging into the subsurface from the dry wells. The catchment basins were designed to intercept a potential chemical spill before reaching the dry well proper. In addition, the pipe which leads from

the concrete basins to the dry well proper is kept capped. Thus, the water in the catchment basin is not allowed to drain into the dry well if chemicals are visible. No sampling of on-site water from the drain or dry wells has been performed.

The location of the sump in the warehouse and shipping area is shown on Figure 2. The sump consists of a steel 55-gallon drum which has been placed in an excavation, then fixed in-place by concrete. At present, water removed from well V-4 is pumped first into a holding tank, then into the sump. From the sump, it is discharged into the sanitary sewer line in conformance with a City of Mountain View Permit (Appendix D).

Surface runoff from the non-paved portions of the site is limited, as the site is virtually flat, non-landscaped, and does not possess a coherent drainage pattern.

Permanente Creek, located approximately 600 feet to the northwest of the site, flows north-northeast towards San Francisco Bay (situated 4.5 miles to the north), and is used primarily for drainage and flood control. It is concrete-lined and channelized.

It is not known whether Permanente Creek has been sampled upstream of the Jasco site. Downstream sampling has been performed in the past few years where the creek flows adjacent to the Teledyne/Spectra Physics contamination site at Terra Bella Avenue in Mountain View. Permanente Creek was sampled at two locations on two occasions by Levine-Fricke as part of their March 13, 1986 hydrogeologic investigation for Spectra Physics (Levine-Fricke, 1986). One sampling location was at the intersection of West Middlefield Road and Permanente Creek, located 0.77 miles north of the Jasco site and the other at the intersection of Charleston Road and Permanente Creek 1.52 miles north of the Jasco site. Trichloroethylene (TCE) at concentrations of 19 and 20 parts per billion (ppb), as well as 1,2-dichloroethane (1,2-DCA) at a

concentration of 7 ppb, and finally chlorobenzene at 1 ppb were detected at the Permanente/Charleston Road sampling location. No chemicals were detected at the Permanente at West Middlefield sampling location.

The Teledyne/Spectra Physics site is a proposed NPL site because of volatile organic contamination of the ground water. The Jasco site is cross-gradient of Permanente Creek.

3.3.2 Ground Water

The depth to ground water at the Jasco site is approximately 23 feet. The on and off-site work that has been performed thus far, indicates that the top of the uppermost or A-aquifer occurs at a depth of 22 to 35.5 feet below ground surface (Appendix C). In the borings completed as part of the Phase I investigation, the A-aquifer ranges in thickness from 3.0 to 13.5 feet. The A-aquifer is composed of alternating sand, gravel, gravelly sand and sandy gravel layers separated by an occasional sandy clay layer. The top of the next deepest or B_1-aquifer has been penetrated in three soil borings. The top of the B_1-aquifer ranges from 46.3 to 50.5 feet below ground surface (Appendix C). The full thickness of the B_1-aquifer has been penetrated only at well I-1, where it is 11.2 feet thick. No well or boring has been drilled to a depth greater than 62.5 feet. Consequently, no on-site data is available regarding the depth and thickness of aquifers at a depth greater than 62.5 feet.

Neither the A or B_1 aquifers are currently used for drinking water purposes in the vicinity of Jasco. Santa Clara Valley Water District records indicate that there may be old agricultural wells in existence within one mile of the Jasco site (Table 5). However, a large percentage of agricultural and other private wells in Mountain View have been abandoned under the supervision of the Santa Clara Valley Water District. The C-aquifer, occurring below a depth of 150 feet, is

used as a source of drinking water. According to studies in nearby areas (HLA, 1987), the C-aquifer is generally separated from the overlying aquifers by a 20-40-foot thick confining clay layer. Occasionally, the C-aquifer may be separated from the A and B-aquifers by a series of thinner clay layers.

The City of Mountain View municipal well 17 is located approximately 1,600 feet northwest (i.e., cross-gradient) of the Jasco site. The City of Mountain View is currently not operating Mountain View well 17. At Mountain View 17, the C-aquifer, the top of which is located 150 feet below ground surface (-94 feet MSL), (HLA, 1987), is separated from the B-aquifer by the B-C aquitard which at Mountain View 17 consists of two clay layers, 7.9 and 12.1 feet in thickness. The confining clay layers are separated by a 20-foot thick cemented gravel layer.

In a study performed by Harding Lawson Associates (HLA, 1987) for Raytheon Company, Intel Corporation, and Fairchild Semiconductor, three members of the "Mountain View 5", the authors state that in the "Mountain View 5" study area, the B-C aquitard is generally 20-40 feet thick and consists largely of stiff silty clay, although sandy lenses are sometimes encountered. Figure 6, taken from HLA (1987), shows the lateral extent of the B-C aquitard in areas west of and including the "Mountain View 5" study area. The resistivity logs of Mountain View 17, and Teledyne well C-1, located 4,000 feet northeast of the Jasco site were used in the construction of the figure. Examination of Figure 6 reveals that the B-C aquitard is laterally extensive in the Mountain View area, including areas adjacent to the Jasco site.

Figure 33 of HLA (1987) displays the potentiometric surface of the C-aquifer in the vicnity of the "Mountain View 5" study area located 1.5 miles northeast of Jasco. The direction of ground water flow in the vicinity of "Mountain View 5" is to the east-northeast. If the

direction of C-aquifer ground water flow in the vicinity of Jasco is the same as that observed at the "Mountain View 5" site, Mountain View well 17 would be cross-gradient from the Jasco site.

On May 29, 1987, ground water samples were taken from on-site well V-3 (A-aquifer) and submitted to Sequoia Laboratories of Redwood City, California, for general mineral, generally physical, inorganic chemical, total coliform bacteria and fecal coliform bacteria analyses. The analysis results, chain-of-custody forms and water sampling parameters sheet are enclosed as Appendix F. The results of the well V-3 chemical analyses indicate that at the Jasco site, the mandatory drinking water standard established by the Environmental Protection Agency (EPA) are exceeded for fluoride content and turbidity. In addition, the California Department of Health Services (DOHS) drinking water standards are exceeded for chloride, color, iron, manganese, odor, total dissolved solids, and specific conductance. Lastly, the EPA recommended standard for sodium content is also exceeded. The data from on-site well V-3 indicate that at the Jasco site, the A-aquifer possesses many deficiences with regard to water quality. The ground water from the A-aquifer at the Jasco site is non-potable in its natural state.

No information is available from the Jasco site regarding the potability of B_1-aquifer ground water. However, information is available from the "Mountain View 5" ground water contamination case. The "Mountain View 5" study area is located 1.5 miles east of the Jasco site. In the B_1-aquifer, about one-half of the wells within the "Mountain View 5" study area exceeded at least one of the established drinking water standards for major ions, and many of the wells had detectable levels of fecal colliform bacteria as well. These data indicate that in the "Mountain View 5" study area, located only 1.5 miles east of the Jasco site, a large portion of the ground water in the B_1-aquifer is of non-potable quality.

Information on the potability of the A and B_1 aquifer ground water is also available from the Teledyne/Spectra Physics ground water contamination site (Levine-Fricke, 1986). As part of their hydrogeologic investigation, Levine-Fricke (1986) sampled five A-aquifer wells and eight B_1-aquifer wells located from 1.17 to 1.59 miles north of the Jasco site. Ground water samples from each of the wells were analyzed for major anions, major cations, and coliform content, both total and fecal. All of the ground water samples analyzed had sodium contents that exceed the recommended EPA standard for sodium. In addition, five of the eight B_1-aquifer wells and four of the five A-aquifer wells had sulfate levels higher than the EPA guidance level for sodium. Lastly, the level of total coliform in five of the eight B_1-aquifer wells and four of the five A-aquifer wells exceed the U.S. Public Health Drinking Water Standard for total coliform. The above-described total coliform data led Levine-Fricke (1986) to conclude that the ground water from both the A and B_1-aquifers is not useful as a source of drinking water.

The data from Jasco A-aquifer well V-3 shows that A-aquifer ground water at the Jasco site is non-potable. Ground water quality data from the Teledyne/Spectra Physics cases located approximately 1.4 miles from Jasco led Levine-Fricke (1986) to conclude that the ground water from both the A and B_1-Aquifer is not useful as a source of drinking water.

The A and B_1-aquifers have also been contaminated by toxic materials at several locations within 3 miles of the site. The contaminated sites located down-gradient or cross-gradient from the Jasco site include: the Teledyne and Spectra Physics sites located 0.88 miles north of the site; the CTS Printex site, 1.36 miles north of Jasco; the "Mountain View 5" sites located 1.50 miles east of Jasco; Hewlett Packard, Logue Avenue, 2.20 miles east of the Jasco site, and Moffett Field Naval Air Station, 2.27 miles northeast of Jasco. There is one contaminated site located up-gradient of Jasco, the Hillview-Elanor plume, located 1.72 miles southwest of Jasco.

The source of local domestic drinking water consists of a blend of 90 percent non-local water from the Hetch-Hetchy Aqueduct and 10 percent local ground water from production wells which draw from the C-aquifer, below 150 feet.

The A-aquifer ground water gradient is extremely flat in the area around the Jasco facility. Data from the Jasco site, along with data from other nearby sites indicate that it has a magnitude of approximately .004-.008 ft/ft. Flow appears to occur generally in a northeast direction, towards San Francisco Bay.

The City of Mountain View supplies drinking water to its residents through a blending program. This program entails mixing potable ground water from the municipal wells with potable water from the Hetch Hetchy Aqueduct in a ratio of 10 percent ground water, 90 percent Hetch Hetchy water. This particular blend of drinking water is distributed to all private residents of Mountain View.

Table 5 is a listing of all existing agricultural and other private wells with the exception of monitoring and municipal supply wells, located within a one-mile radius of the Jasco site. The information summarized in Table 5 was obtained from a map of existing and destroyed monitoring wells located within the U.S.G.S. Mountain View Quadrangle kept on file at the Santa Clara Valley Water District (SCVWD) wells division offices in San Jose, California. Table 6 is a listing of all monitoring wells located within a one-mile radius of the Jasco site. The information summarized in Table 6 was obtained from SCVWD monitoring well location records. Table 7 is a listing of all municipal supply wells in the cities of Sunnyvale, Palo Alto, Los Altos, and Mountain View, located within a three-mile radius of the Jasco site. The information used in the construction of Table 7 was obtained from the water departments of the cities of Mountain View, Sunnyvale, and Palo Alto. Due to time constraints, maps could not be prepared that show the locations of the wells listed in Tables 5, 6, and 7. The well data will be delivered to the CRWQCB under separate cover.

Agricultural uses are practically non-existent in Mountain View.

The distance from the Jasco site to the nearest drinking water well is approximately 1,600 feet (0.3 miles) in a northeasterly direction, westerly cross-gradient from the site. The well, Mountain View 17 is screened only below 220 feet depth, and consequently draws on the C-aquifer. Mountain View 17 is not currently being used by the City of Mountain View.

4.0 SUMMARY

A release of chemicals to ground water, surface water or air has not been observed at the Jasco site.

A summary of the investigative work performed thus far at the Jasco site is contained in the remedial action discussion, Section 2.5. This discussion contains information regarding the number of wells installed and the concentrations of chemicals observed to occur in the ground water.

The aquifer of concern does not occur until a depth of approximately 150 feet below the ground surface. This aquifer, called the C-aquifer, has generally been observed in Mountain View to be hydraulically sealed-off from the upper A and B aquifers by a 20 to 40-foot thick confining clay layer (Figure 6). Figure 6 clearly shows the existence of the confining clay layer, called the B-C aquitard, throughout the Mountain View area. Included in Figure 6 is the resistivity log of Mountain View Municipal Well 17 which shows the B-C aquitard to consist of two clay layers separated by higher permeability units. Within 3 miles of the Jasco site there are several sites where the A, and B_1-aquifers have been contaminated. There is one documented contamination site in the vicinity of Jasco which is located up-gradient of the site. This site is the Hillview-Elanor case, located 1.72 miles northwest of the Jasco site.

Net precipitation in the area has a negative value. Average rainfall is approximately 15 inches per year, while average evaporation is in the range of 60-70 inches per year. This translates into a net precipitation range of -45 to -55 inches per year.

The City of Mountain View (pop. 62,000) derives 10 percent of its drinking water from ground water wells drawing water from the C-aquifer. The distance from the Jasco site to the nearest well is 1,600 feet. This well draws water from depths of 220 feet and below, down to 550 feet depth. There are private wells screened within the A and B_1- aquifers in the surrounding area.

The nearest surface water body to the Jasco site is Permanente Creek, which occurs approximately 600 feet to the northwest of the site. Permanente Creek flows north-northeast towards San Francisco Bay, 4.5 miles to the north. It has been concrete-lined and channelized for drainage control purposes. The sole use of Permanente Creek is flood control, and surface water at the Jasco site does not drain to it.

There is no documented threat of fire and explosion at the Jasco facility. In addition, on-site conditions and storage practices are such that there is no threat of direct contact of chemicals with the surrounding population.

There has never been any observed incident of direct contact, as the site is completed fenced off, and chemicals are stored in bermed, locked storage areas. Population within one mile of the site is estimated to be between 5,000 and 10,000 people.

5.0 CONCLUSIONS

The Jasco Chemical Corporation is located in a highly developed area, within 3 miles of several major ground water contamination sites. Chemical analysis results from the one round of ground water analyses

performed on A-aquifer well V-7 shows that chemicals in the ground water extend 133 feet off-site. Water quality data from on-site A-aquifer well V-3 indicates that ground water in the A-aquifer at the Jasco site is unfit for drinking water usage in its natural state. Water quality data from the "Mountain View 5" and Teledyne/Spectra Physics cases, located 1.5 and approximately 1.4 miles from the Jasco site indicate that B_1-aquifer ground water in the vicinity of the Jasco site is also unfit for drinking water purposes. In addition, these aquifers are generally sealed-off from the C-aquifer by a thick (20-40 ft) clay confining layer (Figure 6). These factors, along with existence of an extremely gentle A-aquifer, hydraulic gradient (.004-.008 ft/ft) in the area, shows that the chemical concentrations that have been observed in the ground water at and in the vicinity of the Jasco site do not pose a threat to either usable (C and deep aquifer) ground water or environmental receptors in the area.

From the work performed thus far, chemicals have been found in the A and B_1-aquifers, at the Jasco site. A-aquifer ground water at the Jasco site is non-potable. There exists a clay aquitard between the A-aquifer and the B_1-aquifer, which again, is not used for human contact purposes. The observed chemicals are cross-gradient and approximately 0.3 miles from the nearest drinking water well, Mountain View 17, which is screened in the C-aquifer. The only chemical concentration observed in B_1-aquifer ground water at the Jasco site was 11 ppb, of 1,1-DCA (below the recommended DOHS action level of 20 ppb). A subsequent sampling of B_1-aquifer well I-1 shows 1,1-DCA at a concentration of 3.9 ppb. The lab results are included in Appendix F. The B_1-aquifer is separated from the C-aquifer for the most part in the Mountain View area by a 20-40-foot thick clay aquitard. These facts make it unlikely that the chemicals observed at the Jasco site, could affect the quality of ground water at Mountain View 17.

REFERENCES

Harding Lawson Associates, April 30, 1987. Remedial Investigation Report - Working Document, Chapter 4, Remedial Investigation/Feasibility Study, Middlefield-Ellis-Whisman Area, Mountain View, California. Draft report prepared for Environmental Protection Agency, Region IX on behalf of Fairchild Semiconductor Corporation, Intel Corporation, Raytheon Corporation.

Levine-Fricke, March 13, 1986. Results of Hydrogeologic Investigation North of Highway 101, Mountain View, California. Report prepared for Spectra Physics, Inc.

TABLE 1

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Ref #	Chemical	Area of Storage (see Fig 1)	1986 Usage[1]	Maximum Quantity on Hand
1	Acetic Acid 80%	10	70 gal	55 gal
2	Acetone	8	48,370 gal	2,500 gal
3	Acid Deformer	10	10 gal	20 gal
4	Acid Orange II (dye)	12	50 lbs	200 lbs
5	Albone M-50 (hydrogen peroxide 50%)	11	330 gal	55 gal
6	Albone M-35 (hydrogen peroxide 35%)	11	1,600 gal	165 gal
7	Alkali Surfactant	12	5 gal	50 gal
8	Ammonium Biflouride	9	1,500 lbs	500 lbs
9	Ammonium Chlorate	9	200 lbs	500 lbs
10	Antifoam Emulsion-DB31 (surfactant)	12	660 gal	55 gal
11	Aqua Ammonia 26° baume	9	50 gal	20 gal
12	Bardac 22 (quat amm chloride)	12	1 gal	20 gal
13	Bentone SD-1 (clay)	9	1,200 lbs	100 lbs
14	Bentone SD-2 (clay)	9	1,000 lbs	100 lbs
15	Blue color (dye)	9	1 qt	1 gal
16	Boiled Linseed Oil	12	20,000 gal	2,000 gal
17	Burnt Umber Paste (Harshaw W-3247)	9	15 gal	20 gal
18	Butyl Alcohol secondary	12	50 gal	55 gal
19	Byk 301	12	15 gal	25 gal
20	Calcium Carbonate	9	40,000 lbs	4,000 lbs
21	Calcium Sulfate	9	30,000 lbs	2,000 lbs
22	Calsoft F-90	9	3,600 lbs	520 lbs
23	Calsoft LAS-99	10	330 gal	55 gal
24	Carsonol SHS	12	5 gal	15 gal
25	Caustic Potash 50%	10	55 gal	20 gal
26	Caustic Soda Beads	9	700 lbs	100 lbs
27	Caustic Soda Liquid 50%	10	110 gal	20 gal
28	Cereclor (Unichlor 40-150)	12	15 gal	55 gal
29	Chevron 184 (white gas)	12	500 gal	500 gal
30	Chevron Pale Oil 9 (mineral oil)	12	3,250 gal	275 gal
31	Chlorethane VG (1,1,1,-Trichoroethane)	12	700 gal	500 gal
32	Citric Acid	9	300 lbs	200 lbs
33	Cobalt Naphthenate 6% (paint drier)	12	55 gal	55 gal
34	Copper Naphthenate 6%	12	1,980 gal	220 gal
35	Copper-8 Quinobinolate (PQ-15)	12	660 gal	500 gal
36	Creosote (coal tar)[2]	12	10,000 gal	1,100 gal
37	Cunapsol-5 (copper naphthenate)	12	100 gal	165 gal
38	Deodorized Kerosene	6	18,505 gal	2,000 gal
39	Denatured Alcohol (ethanol)	4	19,169 gal	2,000 gal
40	Diesel	13	2,901 gal	500 gal
41	Dowanol EB (Glycol ether)	12	6,000 gal	500 gal
42	Emersol 213 (oleic acid)	10	10 gal	30 gal
43	Exkin #2	9	60 gal	15 gal
44	Foamaster A (surfactant)	12	30 gal	55 gal
45	Fluoboric Acid	10	5 gal	15 gal
46	Formalin	10	30 gal	50 gal

TABLE 1 (Continued)

Ref #	Chemical	Area of Storage (see Fig 1)	1986 Usage[1]	Maximum Quantity on Hand
47	Formic Acid	10	2 gal	5 gal
48	Gilsonite (synthetic resin)	9	2,500 lbs	500 lbs
49	Hydrochloric Acid (36%)	10	1,980 gal	110 gal
50	Isopropyl Alcohol	12	7,200 gal	520 gal
51	Lacquer Thinner	7	77,760 gal	2,500 gal
52	Lemon Oil (blended)	9	5 gal	5 gal
53	Lemon Oil (synthetic)	12	110 gal	55 gal
54	Manganese Naphthenate 6% (paint drier)	12	20 gal	55 gal
55	Methyl Ethyl Ketone	12	4,000 gal	500 gal
56	Methanol	5	30,451 gal	2,000 gal
57	Methocel 4FM (cellulosic thickener)	9	12,000 lbs	1,000 lbs
58	Methocel K15-DGS (cellulosic thickener)	9	6,000 lbs	1,000 lbs
59	Methylene Chloride	1	146,230 gal	7,500 gal
60	Monoethanolamine	10	1,300 gal	55 gal
61	Monoisopropanolamine	10	600 gal	110 gal
62	Nitric Acid	10	5 gal	10 gal
63	N-Methyl-2-Pyrrolidone	12	8,800 gal	2,200 gal
64	Odorless Mineral Spirits	12	700 gal	500 gal
65	Paint Thinner	3	311,141 gal	8,000 gal
66	Phosphoric Acid 75%	10	1,050 gal	55 gal
67	Pine Oil	12	55 gal	55 gal
68	Pliolite AC (synthetic polymer)	9	2,000 lbs	200 lbs
69	Polyox WSR-N-3000	9	330 lbs	140 lbs
70	Polyurethane Gloss	12	3,300 gal	520 gal
71	Potassium Oleate	12	1,330 gal	275 gal
72	PVA Latex (Logtex high grade)	12	3,330 gal	1,100 gal
73	Propylene Glycol	12	10 gal	55 gal
74	Pylam Liquid Oil Dye (LO-1109)	9	1 pt	1 gal
75	Raw Sienna (shading paste)	9	10 gal	5 gal
76	Raw Umber (shading paste)	9	55 gal	15 gal
77	Red Iron Oxide (pigment)	9	6,000 lbs	2,000 lbs
78	Red Iron Oxide (shading paste)	9	10 gal	10 gal
79	Red Iron Oxide (shading paste)	9	20 gal	10 gal
80	Silicone R-274 (Union Carbide)	12	365 gal	55 gal
81	Sodium Silicate N	12	1,340 gal	110 gal
82	Soybean Oil	12	660 gal	110 gal
83	Soya Lecethin	12	220 gal	55 gal
84	Sulfatex WA	12	5 gal	25 gal
85	Syloid 169 (silica)	9	625 lbs	100 lbs
86	Tetra Potassium Pyrophosphate	9	55 lbs	100 lbs
87	Thiourea	9	1,240 lbs	165 lbs
88	Toluene	12	6,655 gal	500 gal
89	Triton X-100 (surfactant)	12	3,300 gal	275 gal
90	TSP Crystals	9	100 lbs	200 lbs

TABLE 1 (Continued)

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Ref #	Chemical	Area of Storage (see Fig 1)	1986 Usage[1]	Maximum Quantity on Hand
91	Tung Oil (gym finish 30424-50)	12	3,340 gal	220 gal
92	Turpentine, gum	12	5,360 gal	1,500 gal
93	VM & P Naphtha	12	2,240 gal	500 gal
94	Velveteen R (silica)	9	500 lbs	400 lbs
95	Xylol (xylene)	12	2,460 gal	500 gal
96	Zeothi 265 (silica thickener)	9	105 lbs	100 lbs
97	Zirconium Naphthenate 8% (paint drier)	9	15 gal	5 gal

[1] 1986 figure reported as quantity can vary from year-to-year

[2] Product not sold since July 1986; will be reintroduced late 1987 when new label is approved for restricted use applications

TABLE 2

CHEMICAL ANLAYSIS RESULTS - QUESTA ENGINEERING CORPORATION (ppb)

Sampling Location/Date	Lab	Sample	ACET	ISOPROP	LAQTAIN	MCL	MEK	METH	PAITHIN	PCP	1,1,1-TCA
V-1											
6-4-84	?	GW	98	<30	<5	<5	4	95	860	0.2	9
6-4-84	?	SC, 0-50'									
4-4-85	A	GW	<10	NA	20	10	NA	<20	<100	1.2	NA
11-5-86	W	GW	NA	NA	NA	18	NA	NA	NA	A	NA
V-2											
8-27-86	A	SC, 0-15'	<100	<120	<200	<50	<100	<120	1200	200	<50
8-27-86	A	SC, 20-35'	<100	<120	<200	<50	<100	<120	<400	8.6	<50
8-27-86	A	GW	< 15	< 20	<50	3200	< 15	< 30	<100	1.5	6
11-5-86	W	GW	NA	NA	NA	142000	NA	NA	NA	NA	NA
V-3											
11-5-86	W	SC, 5,10'	1900	2500	50	<25	<1000	580	<50	NA	<25
11-5-86	W	SC, 13,19'	<1000	1200	50	< 5	<1000	440	< 50	NA	<25
11-5-86	W	S, 36'	1800	2400	42	< 5	<1000	300	< 50	NA	<25
11-5-86	W	GW	1000	<1000	NA	7.6	<1000	2700	NA	50	< 0.5
ACET Tank Fill	W	S	2190000	NA	NA	NA	NA	NA	NA	NA	NA
ACET Pump Fill	W	S	<1000	NA	NA	NA	NA	NA	NA	NA	NA
LAQTHIN Tank Fill	W	S	NA	NA	40000	NA	NA	NA	NA	NA	NA
LAQTHIN Pump Fill	W	S	NA	NA	280000	NA	NA	NA	NA	NA	NA
MCL Tank Fill	W	S	NA	NA	NA	77000	NA	NA	NA	NA	NA
MCL Pump Fill	W	S	NA	NA	NA	7200	NA	NA	NA	NA	NA

NOTES

? - Lab not identified in report
W - WESCO Laboratories
A - ANATEC Laboratories
GW - Ground Water Sample
S - Soil Sample
SC - Soil Composite Sample
NA - Chemical Not Analyzed
ACET - Acetone
ISOPROP - Isopropanol
LAQTHIN - Lacquer Thinner
MCL - Methylene Chloride
MEK - Methyl Ethyl Ketone
METH - Methanol
PAITHIN - Paint Thinner
PCP - Pentachlorophenol
1,1,1-TCA - 1,1,1-Trichloroethane
S-AC - Soil Sample from Acetone Tank and Piping Backfill
S-LT - Soil Sample from Laquer Thinner Tank and Piping Backfill
S-MC - Soil Sample from Methylene Chloride Tank and Piping Backfill
T - Soil Sample taken from Tank Backfill
P - Soil Sample taken from Piping Backfill

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TABLE 3

SUMMARY OF CHEMICAL ANLAYSIS RESULTS (ppb)

Well Number/Date	Lab	Analysis	MCL	Chloroethane	1,1,1-TCA	1,1-DCA	TCE	1,1-DCE	Vinyl Chloride	Other
V-2										
12-17-87	S	601-GW	30,000	170	540	880	19	<5	<5	PCE 8.0
2-20-87	SEL	601-GW	86,000	<500	2,040	<500	<500	<500	<500	1,2-DCA 2,580
3-2-87	S	601-GW	1,600	80	610	1,200	< 5	110	<5	
3-19-87	S	601-GW	2,400	<50	510	900	<50	<20	<50	
5-5-87	S	601-GW	700	6	410	540	13	51	5.1	
V-3										
1-30-87	S	624-GW	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1,2-DCE 4.0
V-4										
4-2-87:S4 14'-15.5'	S	8010-So	880	<50	57	<50	<50	<50	<50	
4-2-87:S5 20'-21.5'	S	8010-So	3,500	<50	340	350	<50	<50	<50	
4-2-87:S9 38.5'-40'	S	8010-So	<50	<50	<50	<50	<50	<50	<50	
4-3-87	S	601-GW	1,400	160	1,300	2,200	<10	170	11	
5-20-87	S	601-GW	490	12	390	1,200	< 5	140	<5	
V-5										
5-5-87	A	624-GW	<2.8	<5	<3.8	<4.7	<1.9	<2.8	<5	

TABLE 3 (Cont'd)

SUMMARY OF CHEMICAL ANLAYSIS RESULTS (ppb)

Well Number/Date	Lab	Analysis	MCL	Chloroethane	1,1,1-TCA	1,1-DCA	TCE	1,1-DCE	Vinyl Chloride	Other
V-6										
5-5-87	A	624-GW	<2.8	<5	<3.8	<4.7	<1.9	<2.8	<5	
V-7										
5-5-87	A	624-GW	<2.8	<5	64	55	<1.9	7.7	<5	Carb-tet. 5.0
I-1										
5-15-87	A	624-GW	<2.8	<5	<3.8	10.7	<1.9	<2.8	<5	

NOTES:

S - Sequoia Analytical Laboratory
SEL- Scientific Environmental Laboratories
A - Anatec
601 - EPA Method 601
624 - EPA Method 624
625 - EPA Method 625
8010- EPA Method 8010
GW - Analysis performed on ground water sample
So - Analysis performed on soil sample
Carb-Tet - Carbon tetrachloride

Wahler Associates

TABLE 4

GROUND WATER REMOVAL DATA - WELL V-4

Date	Days of Pumping	Meter Reading (gals)	Gallons/day	Known Cumulative Gallons
4-10-87	1	73758	--	--
4-11-87 to				
4-20-87	Meter broken			
4-21-87	11	08349	3145	34591
4-22-87	12	10837	2488	37079
4-23-87	13	13732	2895[1]	39974
4-24-87	14	15501	1769[1]	41743
4-25-87	15 No Records	--	--	--
4-26-87	16 No Records	--	--	--
4-27-87	17	21860	2830	48102
4-28-87	-- No Pumping	--	--	--
4-29-87	-- No Pumping	--	--	--
4-30-87	18	21930	--	48172
5-1-87	19 Meter broken	--	--	--
5-2-87 to				
5-5-87	No Pumping	--	--	--
5-6-87	--	--	--	--
5-7-87	20	27628	2446	53780
5-8-87	21	30145	2517	56297
5-9-87	22 No Records	--	--	--
5-10-87	23 No Records	--	--	--
5-11-87	24 No Records	--	--	--
5-12-87	25 No Records	--	--	--
5-13-87	26	41962	2725	68114
5-14-87	27	45053	3091	71205
5-15-87	28	47810	2757	73962
5-16-87	22 No Records	--	--	--
5-17-87	22 No Records	--	--	--
5-18-87	--	53831	2666	79983
5-19-87 to				
6-12-87	Meter broken, no data			
6-12-87	54 New Meter	5093	--	--
6-13-87	55 No Records	--	--	--
6-14-87	56 No Records	--	--	--
6-15-87	57	10163	1690	85053

[1] - Pumping for 20 hours

TABLE 5

AGRICULTURAL AND OTHER WELLS WITHIN ONE MILE OF JASCO CHEMICAL CORPORATION

Well Number	Well Number
GS2W15M13	GS2W16R01
GS2W16E01	GS2W17H09
GS2W16E08	GS2W20B01
GS2W16F16	GS2W20B02
GS2W16L06	GS2W20B05
GS2W16L07	GS2W20F01
GS2W16L15	GS2W20L03
GS2W16N01	GS2W21C02
GS2W16P04	GS2W21D05
GS2W16P06	GS2W21D08
GS2W16P09	GS2W21E01
GS2W16P10	GS2W21E02
	GS2W21H01

TABLE 6

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MONITORING WELLS WITHIN ONE MILE OF

JASCO CHEMICAL CORPORATION

Well Number	Well Number	Well Number	Well Number
78W0112	84W0121	85W0296	86W1530
78W0113	84W0122	85W0097	86W1532
83W0189	84W0123	85W0463	86W1657
84W0029	84W0124	85W0464	86W1659
84W0031	84W0614	85W0465	86W1709
84W0033	84W0615	85W0466	86W1765
84W0033	84W0698	85W0467	86W1947
84W0034	84W0699	85W0565	86W1987
84W0035	84W0700	85W0572	87W0274
84W0036	84W0701	85W0573	87W0275
84W0037	84W0702	85W0574	87W0276
84W0038	84W0703	85W0577	87W0277
84W0039	84W0704	85W0992	87W0278
84W0043	84W0901	85W0993	87W0363
84W0044	84W0978	85W0994	87W0399
84W0045	84W0979	85W0995	87W0400
84W0046	84W0968	85W0996	87W0401
84W0047	84W0969	85W0997	87W0402
84W0048	84W0169	85W1237	87W0677
84W0049	84W1170	85W0417	87W0678
84W0050	85W0057	85W0591	87W0694
84W0117	85W0292	86W0758	87W0710
84W0118	85W0293	86W0957	87W0711
84W0119	85W0294	86W1349	87W0712
84W0120	85W0295	86W0529	0652W1F013
			Jasco well V-1

TABLE 7

LOCATION OF WATER SUPPLY WELLS IN PALO ALTO, MOUNTAIN VIEW
SUNNYVALE AND LOS ALTOS, CA
WITHIN THREE MILES OF JASCO CHEMICAL CORPORATION

Palo Alto

3869 Duncan Place
410 Fernando
1899 Park Blvd.
2253 Park Blvd.

Mountain View

Mountain View 4 - Lloyd Way and El Monte Avenue
Mountain View 8 - Cuesta Drive and Begen Avenue
Mountain View 9 - Cuesta Drive and Miramonte Avenue
Mountain View 10 - North Rengstorff and Central Expressway
Mountain View 12 - Moffett Blvd. and Central Expressway
Mountain View 17 - Crisanto Avenue near South Rengstorff
Mountain View 18 - East Street and Route 85
Mountain View 19 - West Evelyn Avenue and Route 85
Mountain View 20 - Margo Drive and Alice Avenue

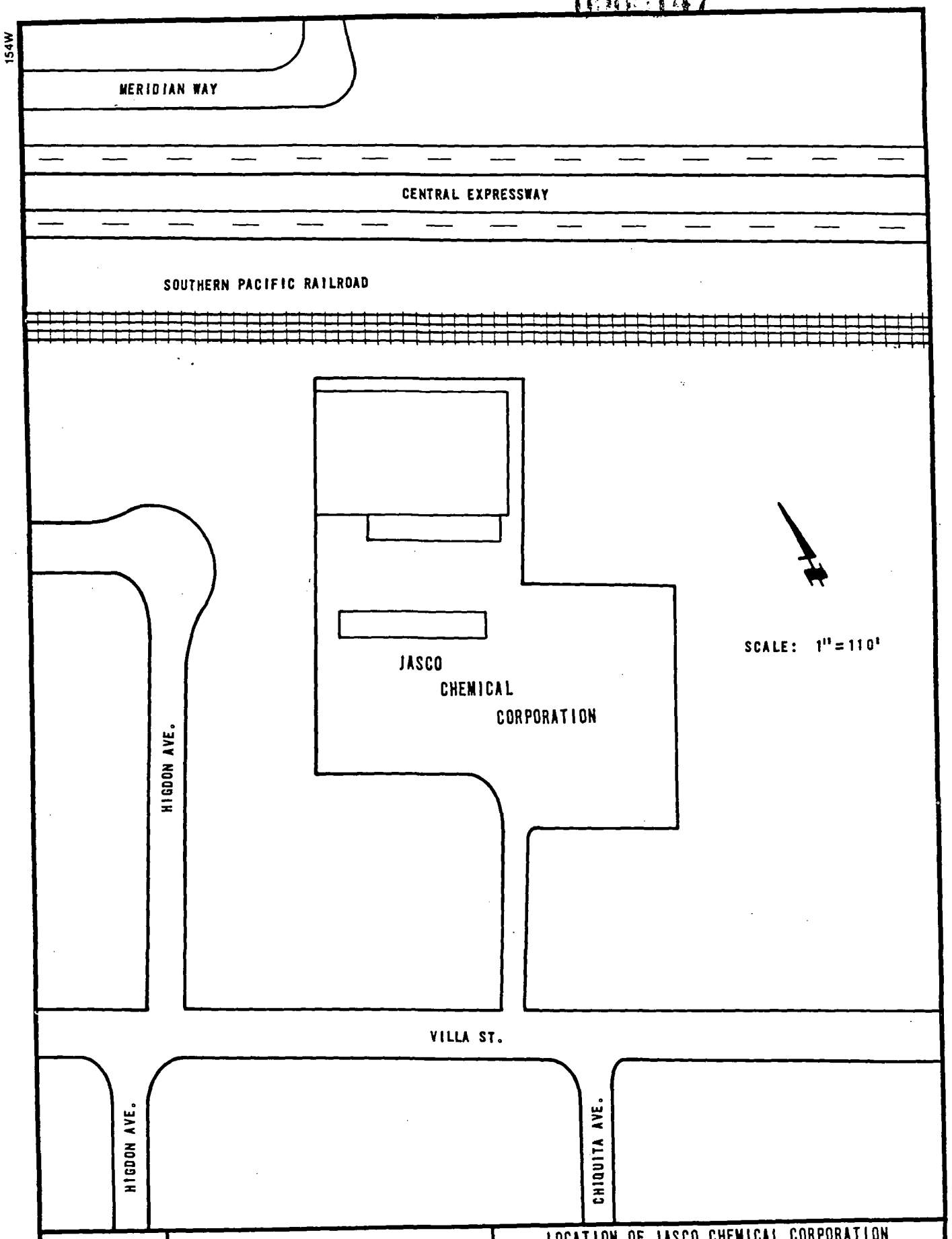
Sunnyvale

Losse 1 - Jamestown Avenue between South Bernardo Avenue and Grape Avenue
Hamilton Plant 1,2 - Ticonderoga Drive and South Bernardo Avenue

Los Altos

STA 2: A,B - Grant and Portland Avenue
STA 4: A,B, - Sunchine Drive
STA 6 - Bryant Avenue
STA 16 - Mirivalle Avenue
STA 17 - Dieriex Drive
STA 22 - Oak Avenue
STA 104 - Fremont Avenue
STA 108 - East Edith Avenue
STA 110 - Hillview Avenue
STA 115 - Valencia Drive
STA 116 - Sunkist Drive
STA 119 - Distel Drive
STA 121: A,B - Portola Avenue
STA 123: A,B - Van Buren Drive
Zanetti - Dieriex Drive

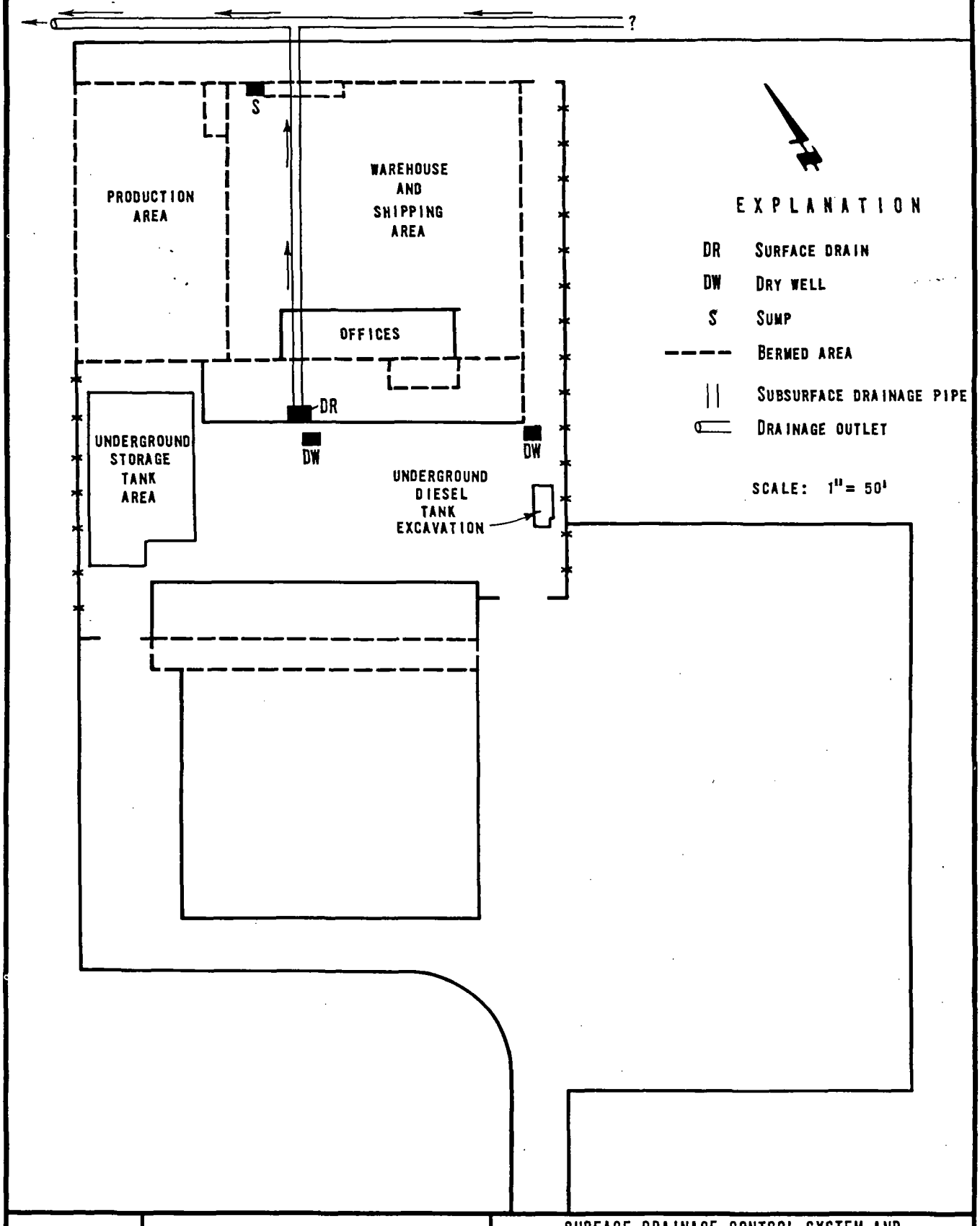
000147



Wahler Associates	JASCO CHEMICAL CORPORATION SITE INSPECTION REPORT	LOCATION OF JASCO CHEMICAL CORPORATION MOUNTAIN VIEW, CALIF.		
		PROJECT NO.	DATE	FIGURE NO.
	PALO ALTO • CALIFORNIA	JCO-104H	JUNE 1987	1

OZALID

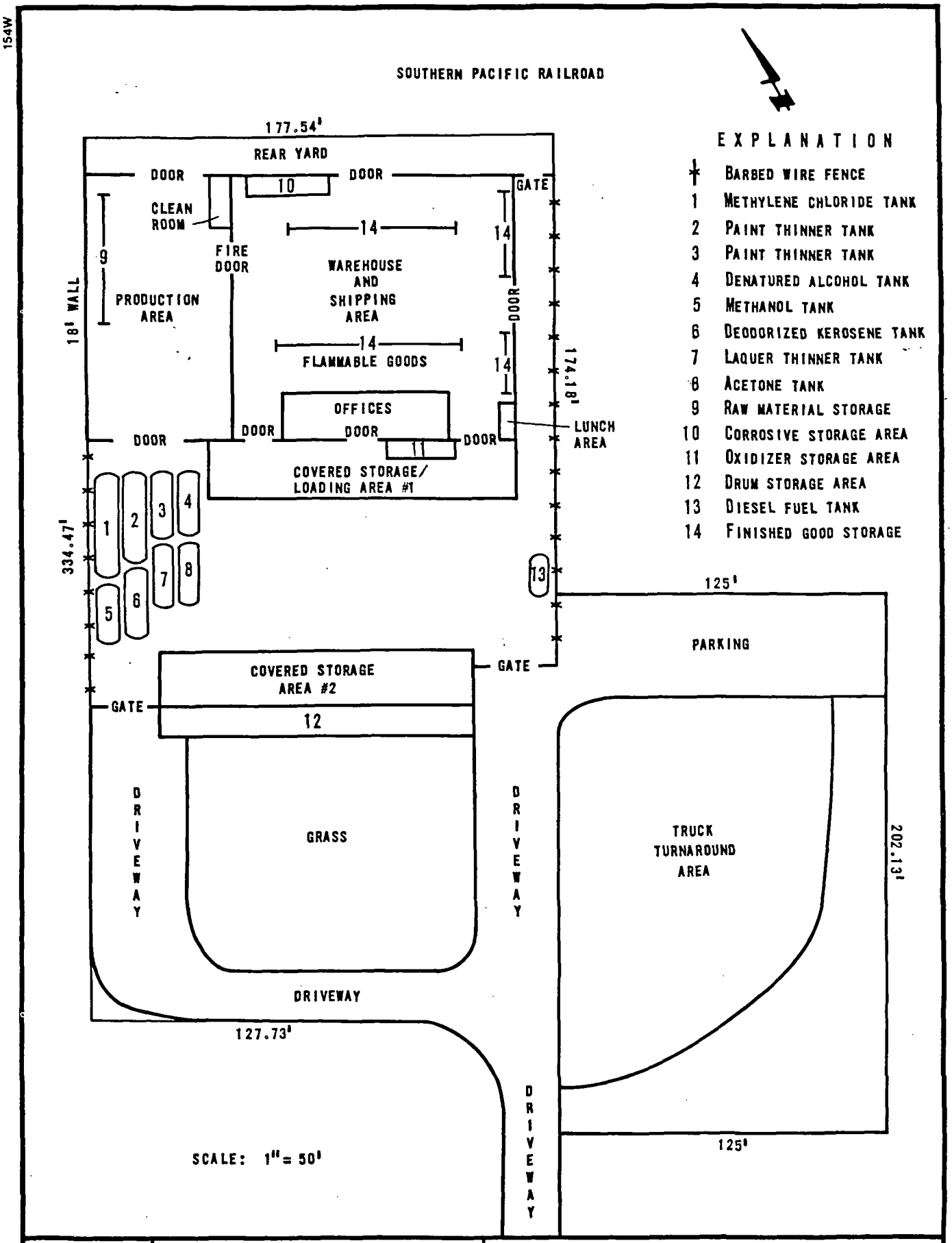
154W



Wahler Associates	JASCO CHEMICAL CORPORATION SITE INSPECTION REPORT	SURFACE DRAINAGE CONTROL SYSTEM AND EXTENT OF BERMED AREAS		
		PROJECT NO.	DATE	FIGURE NO.
	PALO ALTO • CALIFORNIA	JCO-104H	JUNE 1987	2

OZALID

0200147



Wahler Associates

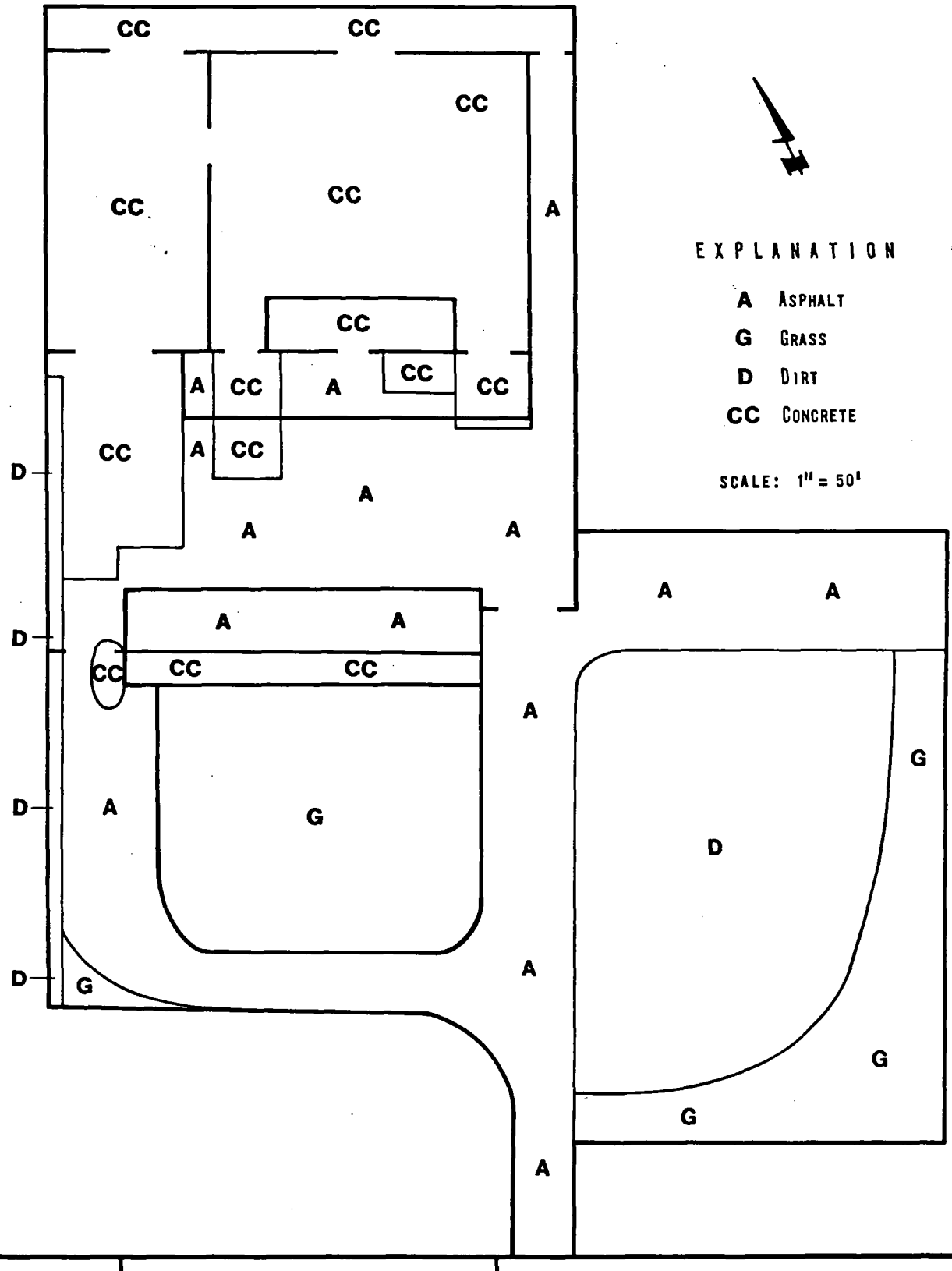
JASCO CHEMICAL CORPORATION
SITE INSPECTION REPORT
PALO ALTO • CALIFORNIA

SITE CONFIGURATION

PROJECT NO.	DATE	FIGURE NO.
JCO-104H	JUNE 1987	3

OZALID

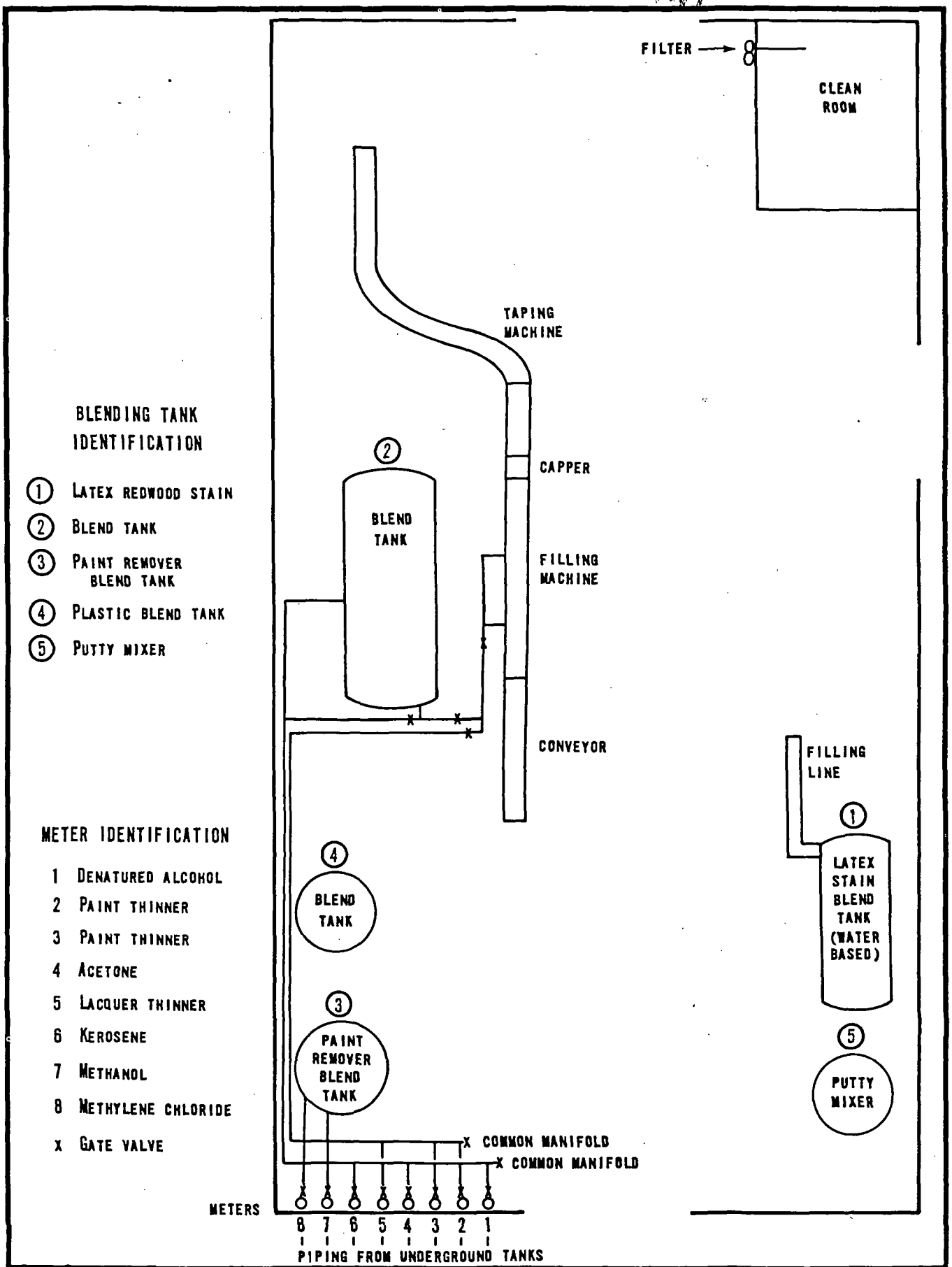
154W



Wahler Associates	JASCO CHEMICAL CORPORATION SITE INSPECTION REPORT	CONDITION OF GROUND SURFACE		
PALO ALTO ● CALIFORNIA		PROJECT NO.	DATE	FIGURE NO.
		JCO-104H	JUNE 1987	4

OZALID

154W



BLENDING TANK IDENTIFICATION

1. LATEX REDWOOD STAIN
2. BLEND TANK
3. PAINT REMOVER BLEND TANK
4. PLASTIC BLEND TANK
5. PUTTY MIXER

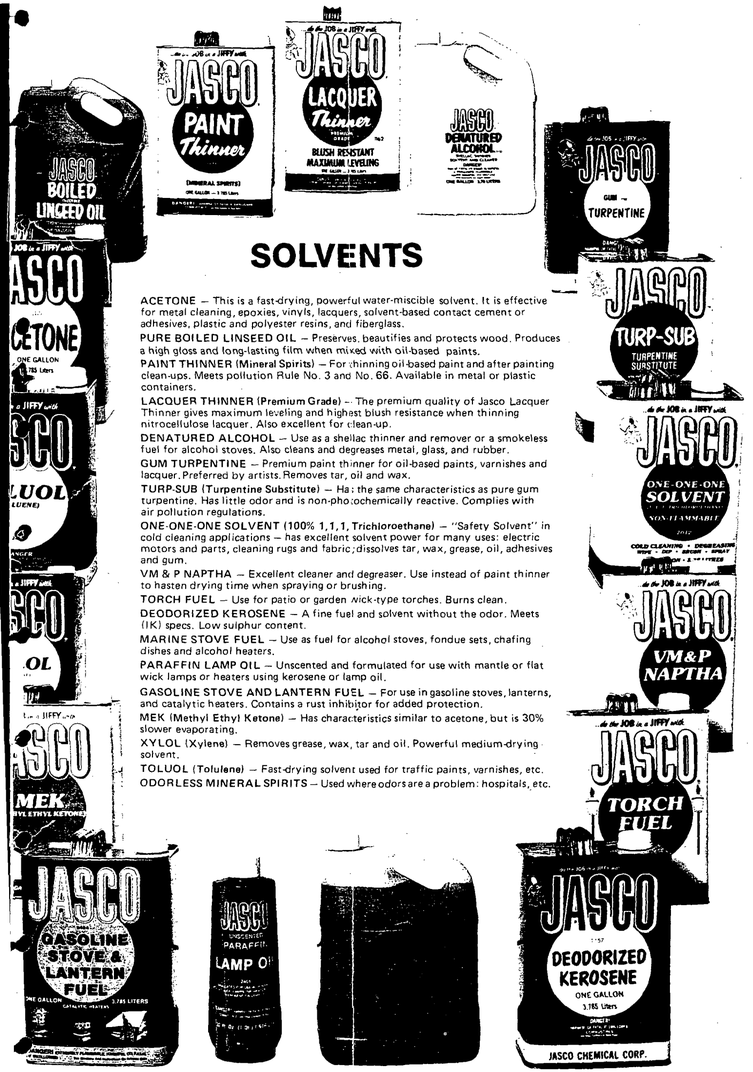
METER IDENTIFICATION

1. DENATURED ALCOHOL
2. PAINT THINNER
3. PAINT THINNER
4. ACETONE
5. LACQUER THINNER
6. KEROSENE
7. METHANOL
8. METHYLENE CHLORIDE

x GATE VALVE

Wahler Associates	JASCO CHEMICAL CORPORATION SITE INSPCETION REPORT	CONFIGURATION OF PRODUCTION AREA PIPING AND EQUIPMENT		
		PROJECT NO.	DATE	FIGURE NO.
	PALO ALTO • CALIFORNIA	JCO-104H	JUNE 1987	5

OZALID



SOLVENTS

ACETONE — This is a fast-drying, powerful water-miscible solvent. It is effective for metal cleaning, epoxies, vinyls, lacquers, solvent-based contact cement or adhesives, plastic and polyester resins, and fiberglass.

PURE BOILED LINSEED OIL — Preserves, beautifies and protects wood. Produces a high gloss and long-lasting film when mixed with oil-based paints.

PAINT THINNER (Mineral Spirits) — For thinning oil-based paint and after painting clean-ups. Meets pollution Rule No. 3 and No. 66. Available in metal or plastic containers.

LACQUER THINNER (Premium Grade) — The premium quality of Jasco Lacquer Thinner gives maximum leveling and highest blush resistance when thinning nitrocellulose lacquer. Also excellent for clean-up.

DENATURED ALCOHOL — Use as a shellac thinner and remover or a smokeless fuel for alcohol stoves. Also cleans and degreases metal, glass, and rubber.

GUM TURPENTINE — Premium paint thinner for oil-based paints, varnishes and lacquer. Preferred by artists. Removes tar, oil and wax.

TURP-SUB (Turpentine Substitute) — Has the same characteristics as pure gum turpentine. Has little odor and is non-photochemically reactive. Complies with air pollution regulations.

ONE-ONE-ONE SOLVENT (100% 1,1,1, Trichloroethane) — "Safety Solvent" in cold cleaning applications — has excellent solvent power for many uses: electric motors and parts, cleaning rugs and fabric; dissolves tar, wax, grease, oil, adhesives and gum.

VM & P NAPTHA — Excellent cleaner and degreaser. Use instead of paint thinner to hasten drying time when spraying or brushing.

TORCH FUEL — Use for patio or garden wick-type torches. Burns clean.

DEODORIZED KEROSENE — A fine fuel and solvent without the odor. Meets (IK) specs. Low sulphur content.

MARINE STOVE FUEL — Use as fuel for alcohol stoves, fondue sets, chafing dishes and alcohol heaters.

PARAFFIN LAMP OIL — Unscented and formulated for use with mantle or flat wick lamps or heaters using kerosene or lamp oil.

GASOLINE STOVE AND LANTERN FUEL — For use in gasoline stoves, lanterns, and catalytic heaters. Contains a rust inhibitor for added protection.

MEK (Methyl Ethyl Ketone) — Has characteristics similar to acetone, but is 30% slower evaporating.

XYLOL (Xylene) — Removes grease, wax, tar and oil. Powerful medium-drying solvent.

TOLUOL (Toluene) — Fast-drying solvent used for traffic paints, varnishes, etc.

ODORLESS MINERAL SPIRITS — Used where odors are a problem: hospitals, etc.

JASCO

NAIL HOLE PUTTY AND WOOD FILLERS

JASCO PASTE WOOD FILLER — For open-grained woods (walnut-mahogany-oak). Gives a smooth surface every time. Sands easily. Accepts all stain and finishes. May be tinted with a universal colorant. Ready to use — no mixing necessary. Natural color — Paste consistency. Coverage: 30-50 square feet per ½ pint, depending upon wood porosity. Perfect for use on tables, floors, cabinets, doors, and desks.

JASCO NAIL-HOLE PUTTY— For use on stained, sealed or finished wood. Putty colors can be intermixed to match finish or stain. 10 wood colors in two sizes. Perfect for interior or exterior paneling, cabinets, coving and door frames.

JASCO

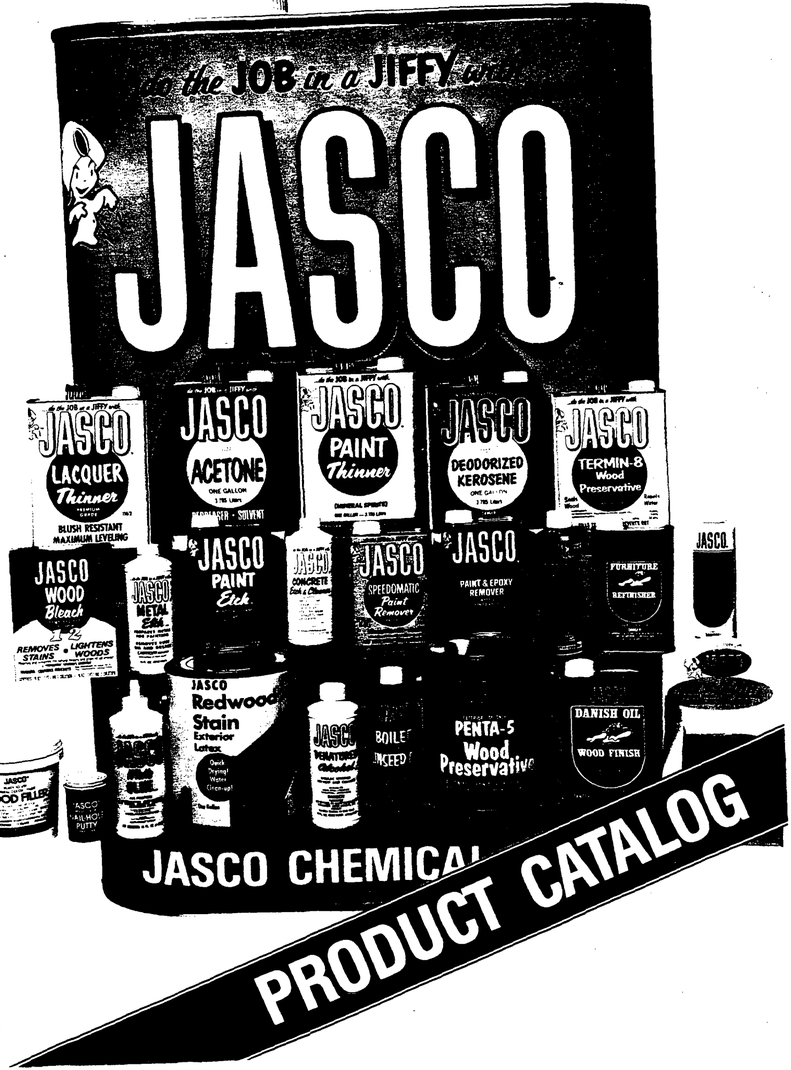
No question about it — The JASCO Line — attractively packaged — will move off the shelf — proven by years of success in face of all competition. Put in the JASCO Line and display it prominently. Your customers will recognize the name.

JASCO F

JASCO PRODUCTS DISTRIBUTED BY:

JASCO C

JASCO CHEMICAL CORP. — Manufacturing Plants in Northern and Southern California



JASCO®

THE COMPLETE LINE OF

SURFACE PREPARATION PRODUCTS

FOUR LEADERS IN THE FIELD

SPEEDOMATIC PAINT & VARNISH REMOVER (Non-Flammable) — Removes all paint, stain, lacquer fast. Penetrates several coats in minutes. Adheres to vertical surfaces. Use outdoors too. . .but not in direct sun. No after-rinse or neutralizing necessary. Harmless to wood, glass, metal. Excels on metals. . . contains rust inhibitor. Exceeds Fed. Spec. TTR-251J, Type III Class B.

PREMIUM PAINT & EPOXY REMOVER (Water Rinsable, Non-Flammable) — Removes all epoxies, urethanes, varnishes, lacquers, shellac. Can be scraped or washed off. No neutralizing necessary. Adheres to vertical surfaces. Use indoors or outdoors (preferably not in direct sun). Won't stain wood, veneer, glass. EXCELLENT FOR MARINE AND HARD-TO-TAKE-OFF PAINTS AND SYNTHETICS

BRUSH & ROLLER CLEANER (Water Rinsable) — Cleans all coatings from all brushes and rollers — fast — even old hardened brushes. Cleans remaining residue from a freshly-used paint brush cleaned with paint thinner. Keeps new brushes and rollers new longer. REMOVES HARDENED LATEX FINISHES FROM ALL BRUSHES AND ROLLERS.

FURNITURE REFINISHER — Dissolves varnish, lacquer and shellac finishes without removing patina or natural color from wood. Eliminates sanding, sealing, filling, and in most cases, staining.

OTHER FAMOUS PROFIT-MAKING WORK SAVERS

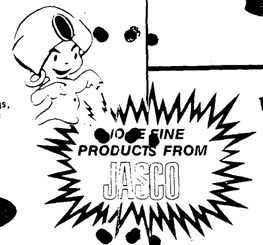
PAINT ETCH (A Liquid Sandpaper) —Softens old film of enamel or varnish, leaving a dull, ideal surface to repaint or antique. CLEANS AND PREPARES SURFACE FOR RE-PAINTING WITHOUT THE FUSS OR MUSS OF WASHING OR SAND-PAPERING. A perfect bond for enamel, varnish and latex. Deglosses all glossy surfaces. Removes grease, wax, heel marks, pencil and finger marks.

METAL ETCH (Plastic Bottle) — Cleans and prepares for painting all metals (iron, steel, aluminum, zinc). Excellent for galvanized surfaces. Removes rust, oil and grease. Eliminates future paint peeling. Wipe on, wash off, and paint. Concentrated. . .may be reduced to as much as 3 parts of water to one gallon. Prepares metals for welding or soldering.

CONCRETE ETCH & CLEANER — Cleans brick, concrete, ceramic tile. Has detergent action. . .unexcelled for cleaning fireplaces, grout, garage floors and concrete driveways. Prepares brick, concrete, stone, tile or cement floors prior to waxing, staining, applying flooring or painting. Gives dulled masonry an original and natural look. Leaves no chalky residue. To clean or etch, allow one coat application stand 5 to 30 minutes, rinse with water thoroughly, paint after 24 hours.

WHITE RING REMOVER — Permanently removes white rings, heat and water marks and stains from furniture.

TACK CLOTH — Always use after sanding and before applying fine finishes or lacquer, varnish or paint. Removes all lint, dust and sand. Marvelous for home, boat, school or shop.



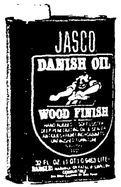
QUALITY • REPUTATION
ECONOMY • DEPENDABILITY

WOOD REFINISHERS

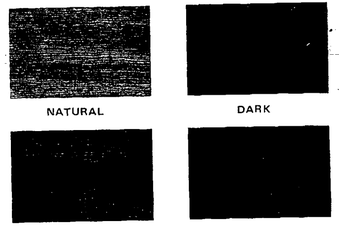
JASCO LEMON OIL TREATMENT — Replaces wood's natural oils that evaporate from furniture. Contains no wax, silicones, linseed oil that build up or darken furniture. Brings new life to any wood, finish, or plastic-laminate table or counter. Leaves a natural lustre with the fragrance of lemon over any finish.

JASCO TUNG OIL — Old Fashioned Finish. This product is resistant to water, heat, and alcohol and can easily be used to give the hand-rubbed lustre of fine furniture. Rubbed into the wood with the palm of the hand or a soft cloth until oil disappears, tung oil will restore the natural color with a clear protective finish ranging from satin to gloss by application of additional coats.

JASCO POLYURETHANE CLEAR FINISH (Gloss and Satin) — Protects and beautifies wood and metal longer than conventional clear finishes. It is highly resistant to alcohol, water, detergents, marring, chipping and wear.



JASCO DANISH OIL WOOD FINISH For That Professional Hand-Rubbed Look. SEALS, PRIMES, PROTECTS, BEAUTIFIES. This is a penetrating oil-resin product formulated to penetrate deeply into new wood, unsealed wood or where the old finish has been completely removed. It produces a soft lustre with no surface film in Natural, Medium Walnut, Dark Walnut or Black Walnut and is recommended for: HARDWOODS, SOFTWOODS, PLYWOOD, WOODWORK, DOORS, FLOORS, TRIM, TABLES. Jasco Danish Oil Wood Finish will not peel or crack and resists alcohols, water and common stains. It penetrates into the cellulose structure of wood and gives the wood greater durability and toughness.



ACCENTS GRAIN • MAKES WOOD BEAUTIFUL

Well-known and liked by everyone.

JASCO WOOD BLEACH (Complete Set of Solution 1 & 2) — Finest material available for bleaching hard or soft woods before filling, staining, refinishing for desired natural look. Lightens wood, removes stains: water marks, ink, alcohol, juice, oil and grease.

JASCO FURNITURE CLEANER & WAX STRIPPER — Use to remove surface wax, dust, dirt, grease, polish and other surface buildups that darken the furniture finish.

JASCO CLEAN AND POLISH — Restores lustre to brass, copper, stainless steel, silver, chrome, and pewter. Removes discoloration, retards tarnishing and will not scratch surfaces.

JASCO GLASS CLEANER (Filmless) — Cleans without leaving an oil film. Makes mirrors, windows, glassware, crystal, sparkle as never before. Will not freeze. Removes water spots. Excellent for marine use.

JASCO PRODUCTS HELP TO BU...
PROFITS AND SATISFIED CUSTOMER...

SEALERS AND PRESERVATIVES

FOR WOOD, MASONRY, CONCRETE

WATER SEALANT — A 5% Silicone water repellent for all types of masonry: brick, stone, concrete, etc. Protects wood up to 5 years, masonry 5 to 10 years. Seals but allows masonry to breathe. Keeps surfaces clean. Cuts maintenance costs. Covers 100 to 250 sq. ft. per gallon. Transparent and colorless. Primer for water or oil-based paints, or can be applied over any flat paint. Meets Fed. Spec. SS-W-110B.

LATEX REDWOOD STAIN (Exterior — Water Clean-up) — An easy, economical way to beautify raw or other water-based stained wood.

CURE-SEAL (Prevents Oil Stains, Cures Fresh Concrete) — Beautifies and protects 1 to 4 years, old or new concrete, brick, aggregate, slate, flagstone, patios, driveways, walkways, steps, basements, carports, and garage floors exposed to oil, grease, rust and water. Cure-Seal applied to fresh concrete controls moisture loss, causes proper drying and makes concrete stronger and less likely to crack. Cure-Seal's clear finish slightly darkens concrete and aggregate, giving it a new "wet look".

PENTA-5 (Wood Preservative) — A ready-to-use 5.2% Pentachlorophenol Preservative. Active ingredients meet Fed. Spec. TT-W-572B, Class A. Stops rot and decay. Kills termites. Repels water. Seals wood. Clear: may paint or stain over it.

TERMIN-8 (Wood Preservative) — A 25% Copper Napthenate Preservative. Protects wood from termites, woodborers and dry-rot fungi. Effective on wood posts, stakes, poles, sills, supports, etc. Penetrates deeply, permanently. Repels water. . .prevents warping. Excellent prime coat when dry. Dries leaving a bright green color. Conforms to Federal Spec. TT-W572-B, Class C (2% as metal).

CREOSOTE (Coal Tar) — 98.5% Active Ingredients. An effective exterior wood preservative for new or existing lumber, fence posts and protects against decay and insects. Meets Federal Spec. and ASTM TT-C-655.

MULTI-PURPOSE ADHESIVES AND ADHESIVE REMOVERS

CONTACT CEMENT — Bonds wood, metal, formica, masonite and many other types of paneling. Needs no clamps or presses. Can be positioned on contact. Water-resistant. . .Dries fast.

WHITE GLUE (Clog-proof Top) — An all-purpose, quick-setting, clear-drying glue for home, shop, studio, office, or school. Unsurpassed for strength and clarity. Clog-proof top gives wide or narrow bead.

PRO BOND (Adhesive for Wood & Porous Materials) — Grabs and sets much faster than white glue and reduces clamp time. Pro Bond is sandable, strong and non-toxic.

STOP SLIP (A Non-slip Liquid Rubber Backing) — Anchors rugs, bath mats, stair carpets and hall runners without marking up the floor. Helps prevent fraying and curling. Also ideal for chairs, ladders, picture frames, clothes hangers and dog bowls.

ADHESIVE REMOVER (Semi-paste, Water Rinsable) — Removes old hardened adhesive and mastic after removal of tile, carpet or linoleum. Leaves a smooth surface to apply new floor or wall covering. Harmless to wood, concrete, glass, ceramic tile, grout and metal.

SOUTH

NORTH

MT. VIEW 20

MT. VIEW 19

MT. VIEW 18

DW1-600

EW-1

EW-2

ME1C

EB-20 (BC)

ME2C

DW-4

MT. VIEW 17

EB-2

EB-60

EB-64

8C

7C

5C

4C

ME3C

TELEDYNE C-1

LEGEND

RESISTIVITY LOG

approximate location of B-C Aquitard

shaded areas represent layers of relatively high resistivity, which is often associated with coarser-grained materials

clay/sand line

Note: No Horizontal Scale

TAKEN FROM HLA, 1987

Log continues to 816' depth

Wahler Associates	JASCO CHEMICAL CORPORATION SITE INSPECTION REPORT PALO ALTO • CALIFORNIA	B-C AQUITARD GEOPHYSICAL SIGNATURE: MOUNTAIN VIEW 5 STUDY AREA	
		PROJECT NO.	DATE	FIGURE NO.
		JCO-104H	JUNE 1987	6

APPENDIX A

EXHIBIT B 000147

CALIFORNIA—HEALTH AND WELFARE AGENCY GEORGE DEUKMEJIAN, Gc

DEPARTMENT OF HEALTH SERVICES
714/744 P STREET
SACRAMENTO, CA 95814
(916) 324-1818

October 7, 1983

Mr. Patrick J. Cafferty, Jr.
Landels, Ripley & Diamond
450 Pacific Avenue
San Francisco, CA 94133

Dear Mr. Cafferty:

This is in response to your recent letter written on behalf of the Jasco Chemical Corporation in Mountain View, California. Your letter requested an interpretation of Section 25122.5(b)(3) of the Hazardous Waste Control Law and agreement that Jasco Corporation is exempted by its provisions. Your letter explained that Jasco is a formulator of a product that contains methylene chloride and as a service to their customers, accepts back the spent material. The spent solvent is then sent to Romic Chemical Corporation for recovery; the reclaimed solvent is returned to Jasco for their use.

We agree with you that Jasco is an original manufacturer for purposes of interpretating Section 25122.5(b)(3). Based on the above facts, the spent material being sent to Romic Chemical is therefore not regulated as a waste. It is not clear from your letter whether the amount of material being returned is only a portion of Jasco's usage. The Department has required that a portion be 10% or less. Therefore, if the amount of methylene chloride returned to Jasco for reuse is less than 10% of their usage, then Jasco's customers are also exempted.

If a waiver is necessary, the waste generator should apply to the appropriate regional office.

Please contact us, if you have any questions concerning this.

Sincerely,

Robert McCormick

Robert McCormick
Alternative Technology & Policy
Development Section
Toxic Substances Control Division

cc: Charles A. White, P.E.
Regional Administrator
Department of Health Services
2151 Berkeley Way, Room 119
Berkeley, CA 94704-9980

SOUTH

NORTH

MT. VIEW 20

MT. VIEW 19

MT. VIEW 18

DW1-000

EW-1

EW-2

ME1C

DW-4

ME2C

EB-20 (BC)

MT. VIEW 17

EB-2

EB-60

EB-64

BC

7C

BC

4C

ME3C

TELEDYNE C-1

LEGEND

RESISTIVITY LOG

approximate location of B-C Aquitard

shaded areas represent layers of relatively high resistivity, which is often associated with coarser-grained materials

clay/sand line

Note: No Horizontal Scale

TAKEN FROM HLA, 1987

Log continues to 816' depth

Wahler Associates

JASCO CHEMICAL CORPORATION
SITE INSPECTION REPORT
PALO ALTO • CALIFORNIA

B-C AQUITARD GEOPHYSICAL SIGNATURE:
MOUNTAIN VIEW 5 STUDY AREA

PROJECT NO.	DATE	FIGURE NO.
JSC-104W	JUNE 1987	6

Questa Engineering Corporation
CIVIL, ENVIRONMENTAL & AGRICULTURAL ENGINEERS

October 20, 1986

Mr. Max Anthony
JASCO Chemical Corporation
1710 Villa Street
Mountain View, CA

Subject: Jasco Monitoring Well V-2

Dear Mr. Anthony:

On August 1, 1986, we met at your Villa Street plant with you and Mr. Dan Thomas of JASCO, and Mr. Ronald Clawson of the San Francisco Bay Regional Water Quality Control Board, to discuss additional monitoring needs. Subsequent to this meeting our firm was contracted to sample the soils and groundwater, and to install a groundwater monitoring well on the north side of your operations building. This report discusses the methods, analytical results, findings and recommendations regarding this work.

METHODS

Soil sampling and well installation was conducted on August 22, 1986, using an 8-inch hollow-stem auger drilling rig operated by HEW Drilling of Mountain View. The location of the exploration drilling and monitoring well (V-2) installation is shown in Figure 1. Undisturbed soil samples were taken at 5-foot intervals from 5- to 35-feet using 2-inch diameter brass tubes in a split spoon sampler. A portion of each sample was prepared for transport to the analytical laboratory by capping the brass tube with plastic caps, sealing the tube in a plastic "zip lock" bag, and refrigerating the sample. A 2-inch diameter PVC monitoring well was installed in the resulting hole and backfilled with filter sand, bentonite, and cement, as illustrated in Figure 2. The boring log was compiled from visual observation of drill cuttings and unused portions of the soil samples. The boring log is provided on Figure 3 at the end of this report.

Following installation, the monitoring well was purged by evacuating 15 gallons of water, using a stainless steel bailer. The bailer was cleaned, and then used to obtain a water sample, which was placed on ice for transport to the laboratory.

Soil and water samples were analyzed by ANATEC Laboratories of Santa Rosa. Soil samples were composited by the laboratory into two samples: (1) a "shallow" composite of the samples from 5-feet, 10-feet, and 15-feet; and (2) a "deep" composite of the samples from 20-feet, 25-feet, and 35-feet.

The sample at 30-feet was not considered to be representative and thus not used in the composite. Soil and water samples were analyzed for all chem-

icals reportedly stored in underground tanks at the JASCO facilities. Analytical methods were consistent with those in previous monitoring at JASCO and are described in the accompanying laboratory report.

FINDINGS

Results of chemical analysis of soil and groundwater samples are listed in Table 1. As indicated, all chemicals were below detection limits with the following exceptions.

1. Paint thinner was found in the shallow soil composite at a concentration of 1200 ug/kg; but it was not detected in the deep composite or in groundwater.

2. Pentachlorophenol was found in decreasing amounts with depth: 200 ug/kg in the shallow soil composite, 8.6 ug/kg in the deep soil composite, and 1.5 ug/l in the groundwater.

3. Methylene chloride was not found in either soil composite, but the groundwater sample contained an alarmingly high concentration of 3,200 ug/l.

The distribution and concentrations of paint thinner and pentachlorophenol in the soils indicate that they are likely the result of surface spills in the immediate area of the well and not due to underground tank leakage and groundwater transport. The methylene chloride, however, appears only in the groundwater and is most likely from an upgradient source, i.e., the JASCO tank farm.

RECOMMENDATIONS

Due to the serious implications of groundwater contamination downgradient of JASCO's tank farm, a second, confirmation water sampling and analysis, at well V-2 should be considered prior to additional groundwater exploration. If the second sampling of groundwater confirms the presence of methylene chloride in groundwater, it is our recommendation that further exploration proceed as follows:

- Initially, one well (V-3) should be placed as close as practical to Tank #1 (which contains methylene chloride) on the downgradient side of the tank. The installation of this well, with accompanying water and soil sampling, will provide sufficient data to define groundwater gradient and flow direction, source concentration, and hydrogeologic conditions adjacent to the tank farm.

- Tank #1, and associated piping, should be tested for leakage to determine the source of contamination. This should be undertaken as soon as possible. If tank leakage is confirmed, the tank should be taken out of service, or the problem corrected if it is the result of defective piping.

- Two to three additional monitoring wells should be installed on the downgradient (northeast) side of the property along the railroad right-of-way, to determine the lateral extent of the contamination plume. A decision on the siting of these wells should be deferred until the groundwater data and sampling results from monitoring well V-3 can be evaluated.

Further recommendations regarding monitoring and a remediation scheme should be evaluated upon completion of the above exploratory work. We are available to meet with you and the Regional Water Quality Control Board to discuss the situation.

If you have any questions regarding our sampling, findings and recommendations, please call Patrick Casey, or myself, at (415) 236-6114.

Sincerely,

Norman N. Hantzsche, P.E.
Managing Engineer

RCE 24750

Ref. 8669r5

ANATEC LABORATORIES INC.

435 Tesconi Circle • Santa Rosa, California 95401 • 707-526-7200

Patrick Casey
Questa Engineering
PO Box 356
Pt. Richmond, CA 94807

October 6, 1986986
ANATEC Log No: 8289 (1-3)
Series No: 216/006
Client Ref: (V) P. Casey

Subject: Analysis of Two Soil and One Water Samples Received August 27, 1986

Dear Mr. Casey:

Analysis of the samples referenced above has been completed. Samples were received by the laboratory in insulated shipping containers. During the laboratory log-in process, samples were noted to be cool, intact and completely and legibly labeled. Each of the soil samples were submitted as three brass rings with directions to form one composite sample for analysis, respectively. The water sample was submitted in each of two types of containers; these were 40-milliliter glass vials with Teflon septa and plastic screw caps, and one-liter amber glass bottles with Teflon capliners and plastic screw caps. The water sample and composite soil sample were analyzed to measure a variety of volatile species including individual compounds and three complex hydrocarbon mixtures. Contents of one-liter bottles were analyzed to measure pentachlorophenol.

Volatile species measurements were made by purge-and-trap sampling gas chromatography. Briefly, reagent helium is bubbled through five milliliter portions of water sample or soil sample-water slurries in a closed system. Helium and volatile organic compounds thus sparged from the sample pass through a "trap" containing various sorbents which retain organic compounds. The trap is subsequently heated and organic compounds thereby desorbed are swept onto the analytical column of a gas chromatograph equipped with a flame ionization detector. Preparation and analysis of samples is accompanied by similar treatment of standards and sample spikes prepared with neat, reagent grade compounds, or, in the case of complex mixtures, reference samples of those mixtures supplied previously with samples. Identification of compounds is based on both absolute and relative retention times; quantitation is based on ratios of sample and standard peak areas (i.e., "external standardization").

Pentachlorophenol analyses were conducted by gas chromatography of the acetate derivative produced by reaction with acetic anhydride. Derivatives are identified and quantitated as for volatile analytes except that the process is conducted with an electron capture rather than flame ionization detector.

Results of testing are summarized in Table 1. Please feel welcome to contact us should you have questions regarding procedures or results.

Sincerely,

Greg Anderson, Director
Analytical Laboratories

Table 1. Summarized Testing Results[1]

Analyte	Descriptor, Lab No. & Results: 5 to 15 feet Composite (Soil) (8289-1, -2,-3)	20 to 35 feet Composite (Soil) (8289-4,-5,-6)	VOA (Water) (8289-7, -8,-9,-11)
Deodorized kerosene	<400	<400	<100
Lacquer thinner	<200	<200	<50
Paint thinner	1200	<400	<100
Methyl alcohol	<120	<120	<30
Ethyl alcohol	<120	<120	<20
Isopropyl alcohol	<120	<120	<20
Dichloromethane	<50	<50	3200
Acetone	<100	<100	<15
Methyl ethyl ketone	<100	<100	<15
1,1,1-trichloroethane	<50	<50	<6
Trichloroethylene	<50	<50	<6
Pentachlorophenol	200	8.6	1.5

[1]Results are expressed in units of micrograms analyte per kilogram soil sample, as received basis, and micrograms analyte per liter water sample.

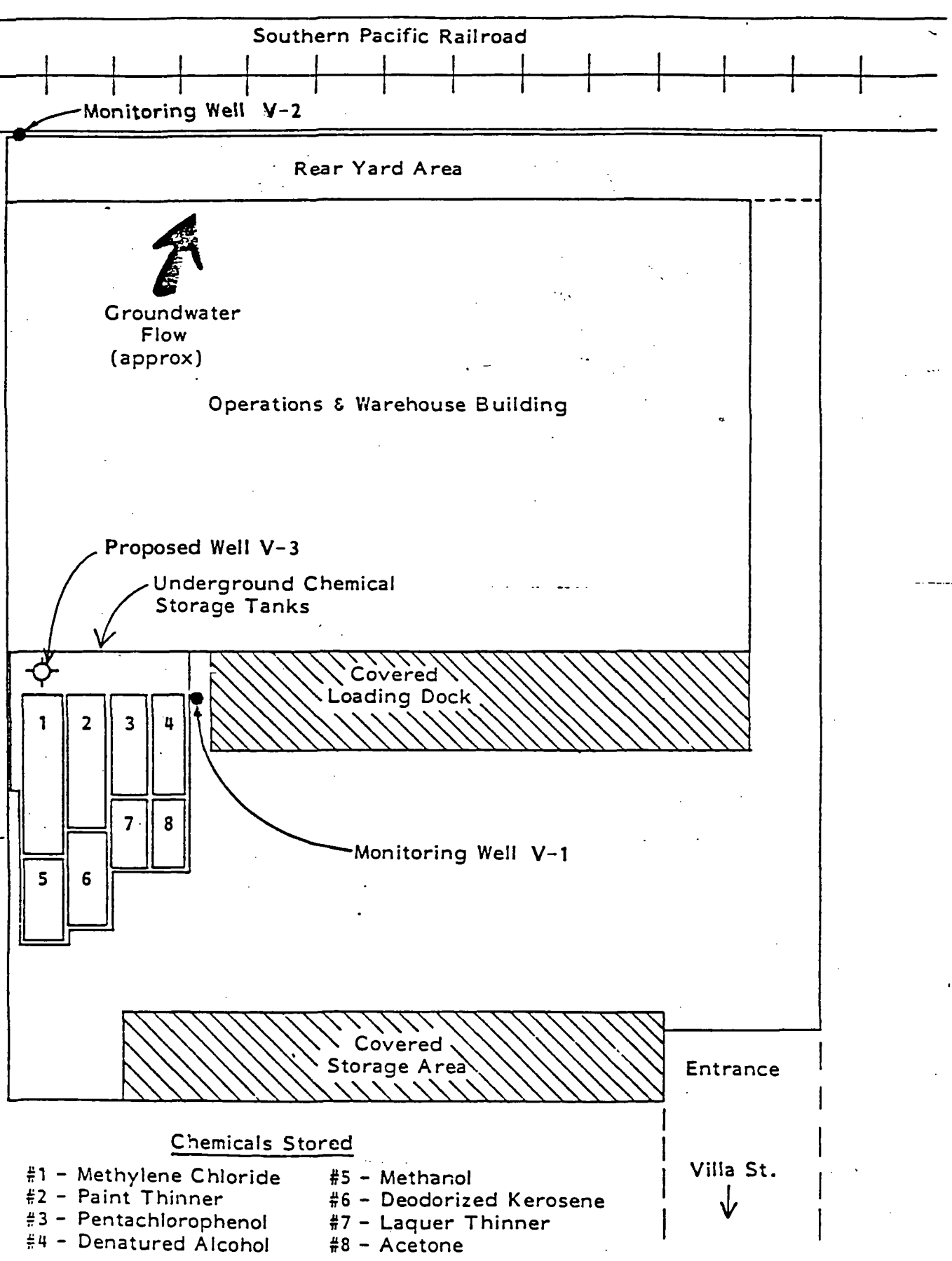
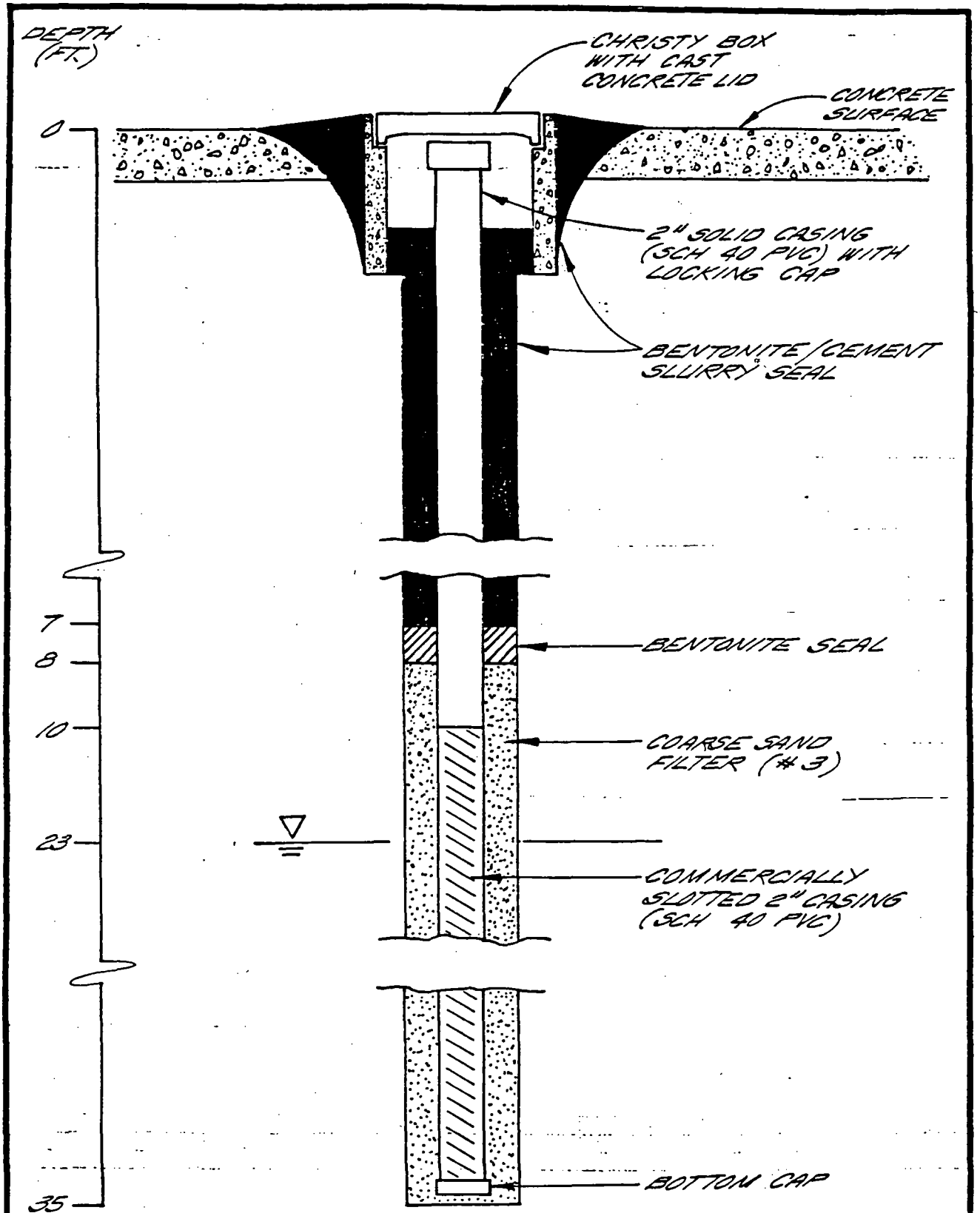


Fig 1

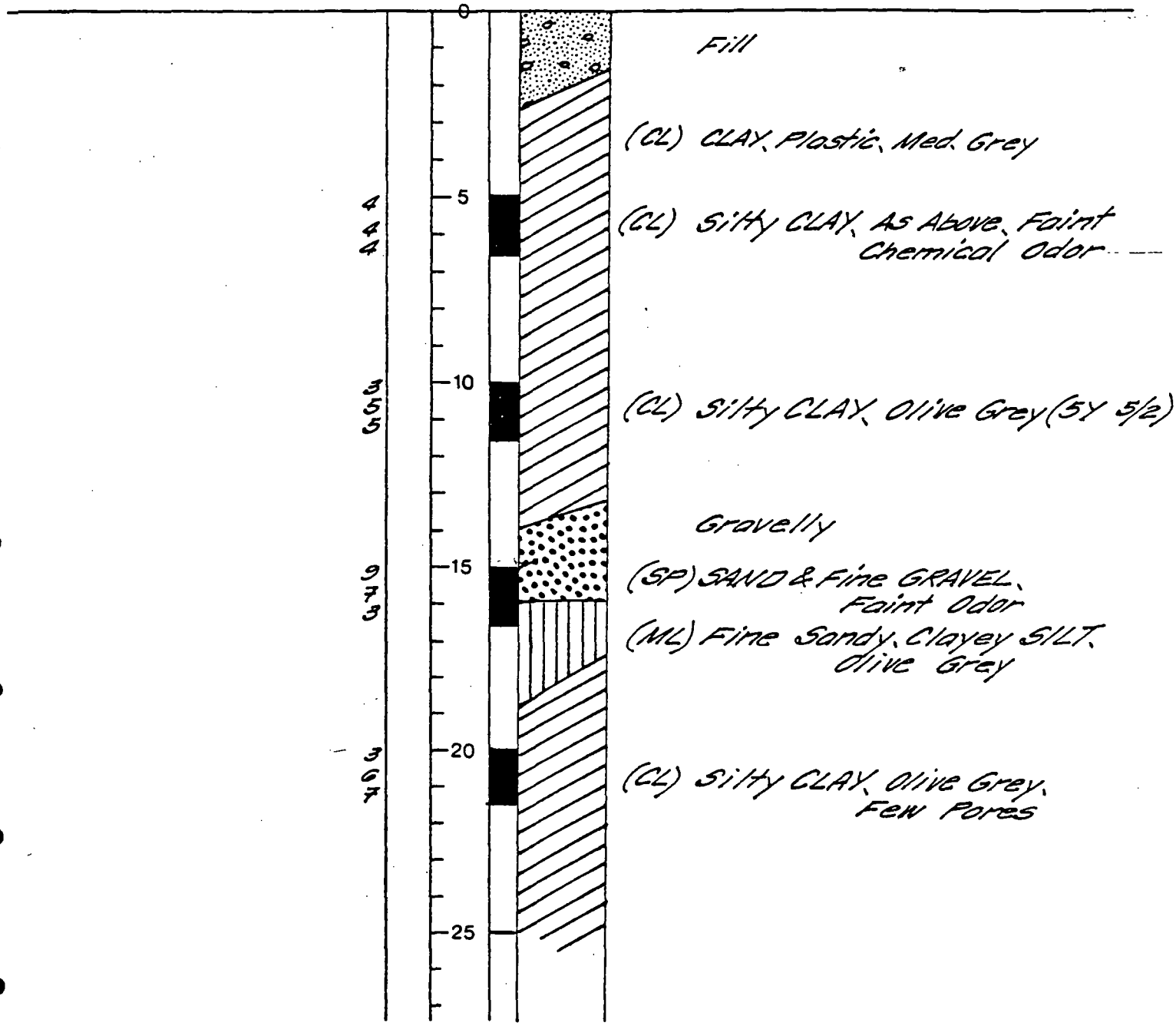
N Scale 1" = 30'	SITE MAP JASCO CHEMICAL CORPORATION 1710 Villa St., Mt. View, Calif.	Questa Engineering Corp. Pt. Richmond, Calif.



Questa Engineering Corp. Point Richmond, Calif.	V#2 WELL CONSTRUCTION DETAILS	Fig. 2

Questa Engineering Corporation
Civil, Environmental & Agricultural Engineers

DRILL HOLE NUMBER VILLA #2
DATE DRILLED 8/22/86
WELL HEAD ELEVATION _____
DRILLING METHOD 8" HOLLOW STEM AUGER
WELL O.D. 2"



logged by PNC
checked by _____

LOG of Drill Hole Number VILLA #2
at JASCO PAINT CO. Proj No. 8669

Fig 3
1 of 2

Questa Engineering Corporation
Civil, Environmental & Agricultural Engineers

DRILL HOLE NUMBER VILLA #2

DATE DRILLED 8/22/86

Moisture Content (%)	Dry Density	Blows / 6"	Groundwater Level	DEPTH (ft.)	Sample Interval	Graphic Log	CLASSIFICATION and Remarks
		3 4 8		25			(CL) Silty CLAY, with Trace Sand, Blue Grey, Few Roots, Few Pores
		3 4 7		30			(CL) Silty CLAY, Trace Fine Gravel, Olive Grey (5Y 3/1)
		5 7 10		35			(SP) SAND, Clean, Few Angular Gravel Clasts
				EOH			(CL) Silty CLAY, Gravelly

logged by PNC

checked by _____

LOG of Drill Hole Number VILLA #2

at JASCO PAINT CO. Proj No. 8669 2 of 2

Questa Engineering Corporation
CIVIL, ENVIRONMENTAL & AGRICULTURAL ENGINEERS

May 15, 1985

Mr. Max Anthony
JASCO Chemical Corporation
1710 Villa Street
Mt. View, CA

Dear Mr. Anthony:

Enclosed are the results of the recently completed groundwater sampling and analysis for the underground tank monitoring well at JASCO's Villa Street facility in Mt. View. The field sampling and laboratory work was conducted by ANATEC Laboratories, Inc., of Santa Rosa under Questa's direction. The enclosed report by ANATEC provides a description of field and laboratory methods and a listing of analytical results.

As you will note from the results summary (Table 1), nearly all of the chemicals stored in the underground tanks were not found to be above detectable limits in the groundwater sample. The only chemicals at detectable concentrations were petachlorophenol (1.2 ppb) and dichloromethane (10 ppb). Both of these concentration values are very small and could be the result of yard spillage or runoff into the drainage well on the property. Also detected were two unknown compounds at low concentrations (11 ppb and 4 ppb). These compounds were not specifically identifiable by the laboratory analyses, but are known not to be among the chemicals stored in JASCO's underground tanks. Their detected presence in the groundwater may, like pentachlorophenol and dichlormethane, be the result of surface spillage in the area or possibly background concentrations due to other current or past industrial practices in the general area. At 11 ppb and 4 ppb the concentrations are very low, and do not appear to represent a problem which would require additional investigation or clean-up attention.

In comparison with the previous sampling results (reference Questa Engineering report of July, 1984), the following can be stated:

> Paint thinner, acetone, and methanol, which were detected at low but measurable concentrations in the previous sampling, were not detected in this sampling. This would tend to indicate the lack of any tank or piping leakage related to these stored chemicals.
>
> Pentachloropenol was detected at extremely low concentrations in both samplings (0.2 ppb in 1984; 1.2 ppb in 1985). The sensitivity of the analysis for this compound is such that these concentrations probably represent a very faint background level that may have occurred from rainwater infiltration around the site. The change from 0.2 ppb in 1984 to 1.2 ppb in 1985 is not significant.

1220 BRICKYARD COVE ROAD
P.O. BOX 356 • POINT RICHMOND, CALIFORNIA 94807 • (415) 236-6114

Dichloromethane (methylene chloride) is the only new compound detected in this most recent sampling. The low (10 ppb) concentration does not necessarily reflect a tank leakage problem; however, if future sampling shows an increasing trend, special attention should be given to inspecting the tank and piping for this chemical.

The previous sampling also revealed low, detectable concentrations of two compounds not stored at JASCO, and determined these to be Methyl ethyl ketone (4 ppb) and 1,1,1-Trichloroethane (9 ppb). The unknown compounds detected in the recent sampling were at similar concentration levels, and it is likely, but not definite, that they are the same compounds previously identified.

Based on these sampling results, there appears to be no evidence of chemical leakage at JASCO's facilities, or need for more extensive groundwater testing. Because of the faint concentrations of several chemicals it is our recommendation that periodic sampling of the existing well continue, preferably on a semiannual basis. Also steps should be taken, if not already completed, to secure the drainage well on the property against entry of spillage, wash water or unnecessary runoff from your storage yard area.

Please contact us if you have any questions concerning the results and recommendations, or if you need additional assistance from us.

Sincerely,

Norman N. Hantzsche, P.E.
Managing Engineer

ANATEC LABORATORIES INC.

435 Tesconi Circle • Santa Rosa, California 95401 • 707-526-7200

Norman Hantzsche
Questa Engineering
726 Ocean Ave.
P.O. Box 3536
Pt. Richmond, CA 94807

April 25 1985
ANATEC Log No: 6606 (-1)
Series No: 216/003
Client Ref: (V) N.Hantzsche

Dear Mr. Hantzsche:

Enclosed are the procedures and analytical results for the Jasco project for incorporation into your report. As shown in Table 1, two of the materials stored on site, pentachlorophenol and dichloromethane, were above detection limits in the water sample. Two additional unknown constituents were also quantified.

If you should have any questions, feel free to phone.

Submitted by:

William G. Rotz
Field Services

Approved by:

Greg Anderson, Director
Analytical Laboratories

/co

GROUND WATER SAMPLING METHODS

Samples from the monitoring well at Jasco's Villa St. facility were obtained on April 4, 1985. Equipment and procedures used were identical to those employed for the June 1984 sampling effort and were consistent with those described in the San Francisco Regional Water Quality Control Board's "General Guidelines for Subsurface Investigations."

Bailing

Prior to sample collection, the static water volume in the monitoring well was purged by means of a stainless steel bailer fitted with a teflon check valve. Static volume was calculated following determination of water depth. A total of 12 gallons, corresponding to 8 static volumes were removed before samples were collected. The bailer was precleaned at the laboratory prior to use in the field by washing the unit with concentrated trisodium phosphate (TSP) followed by successive rinses in tap water and deionized water.

Sampling

Water samples for determination of pentachlorophenol were obtained in 1 Liter, precleaned amber bottles fitted with teflon lid liners. Samples analyzed for the remaining potential contaminants (Table 1) were collected in 40 mL, precleaned septum vials. Aeration of the water sample was avoided during transfer of water from bailer to vial. Samples were immediately placed on ice and transported to the laboratory on the day of collection.

LABORATORY METHODS

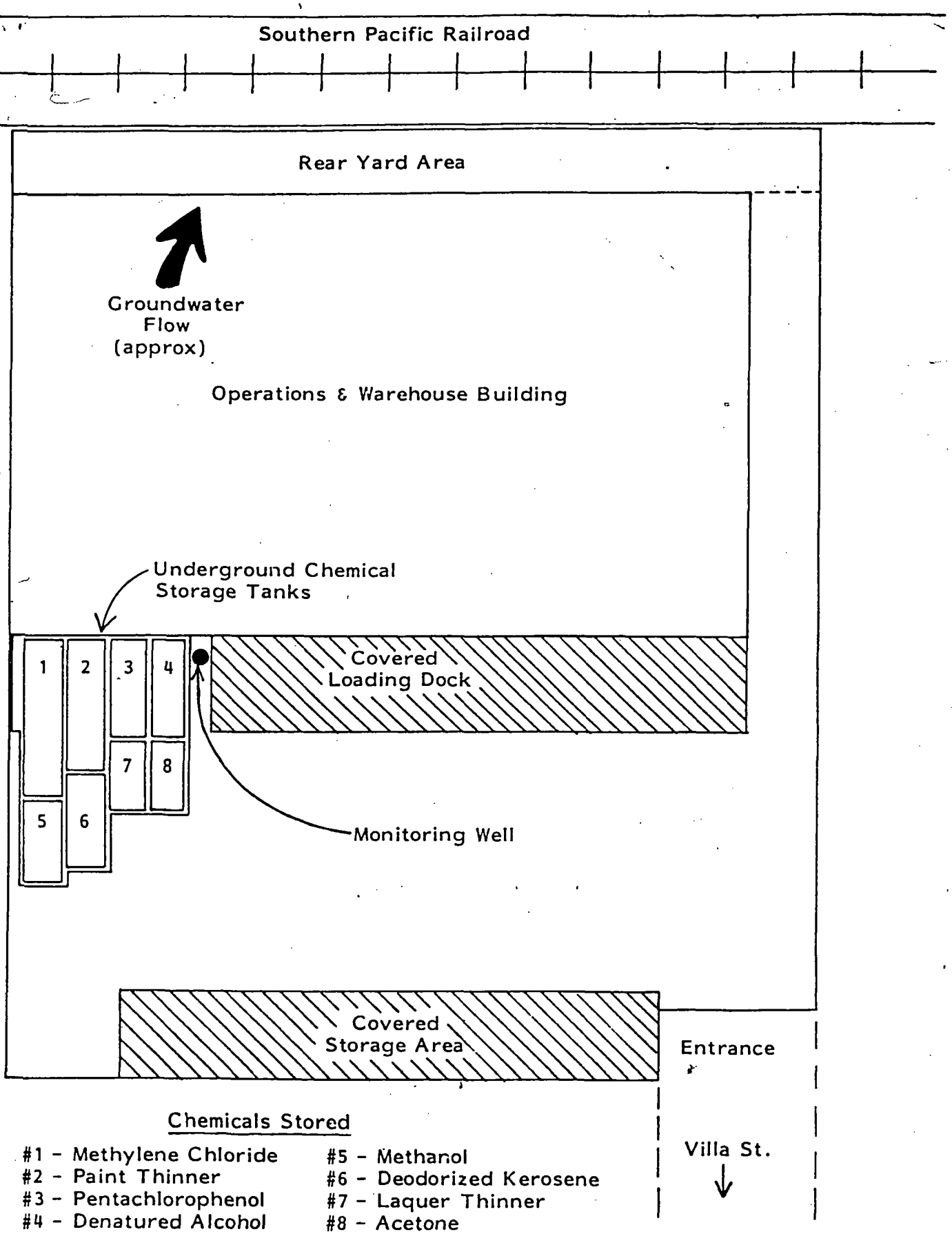
Water samples were analyzed to measure the concentrations of purgeable solvents (methanol, dichloromethane, paint thinner, deodorized kerosene, lacquer thinner, denatured ethanol, acetone, and isopropanol) and pentachlorophenol.

The analytical methods used were the same as those described in the previous report on the Jasco facility, submitted to Questa in July, 1984. Solutions of methanol, dichloromethane, acetone, and isopropanol were obtained from Spectrum Chemicals; the remaining reference materials for lacquer thinner, paint thinner, and deodorized kerosene were obtained from Jasco. Analytical results are summarized in Table 1.

Table 1. Summarized Results[1]

Analyte	Villa St. Facility (6606-1)
Pentachlorophenol	1.2
Purgeable Solvents	
Acetone	<10
Methanol	<20
Ethanol	<20
Dichloromethane	10
Deodorized kerosene[2]	<1,000
Paint thinner[2]	<100
Lacquer thinner[2]	<20
Unknown[3] RRT = 0.516	11
Unknown RRT = 0.976	4

[1]Units are ug/L (ppb).
[2]Reference standard supplied by Jasco.
[3]Unknown compounds; RRT is retention time of unknown relative to 1-bromo-3-chloropropane. Quantitation is as 1-bromo-3-chloropropane.



N Scale 1" = 30'	SITE MAP JASCO CHEMICAL CORPORATION 1710 Villa St., Mt. View, Calif.	Questa Engineering Corp. Pt. Richmond, Calif. February, 1984

Questa Engineering Corporation
CIVIL, ENVIRONMENTAL & AGRICULTURAL ENGINEERS

July 6, 1984

Mr. Max Anthony
JASCO Chemical Corporation
1710 Villa Street
Mt. View, CA

Dear Mr. Anthony:

Presented herein is our report on the subsurface investigation of soil and groundwater conditions at JASCO Chemical Corporation's current manufacturing facility located at 1710 Villa Street in Mt. View. As outlined in our proposal and contractual scope of work, this investigation was undertaken to determine the presence of various organic chemicals in the near-surface soils and groundwater in the area of underground storage tanks at the site.

Our findings show relatively low concentrations of several chemicals at the current Villa Street location which could be indicative of leakage from tanks or piping systems. Additional investigation of possible sources is warranted. Also, other organic chemicals, not apparently related to JASCO's operations, were noted to be present at low concentrations in groundwater at the site.

We appreciate the opportunity to provide our services and would be pleased to respond to any questions you may have regarding this report or additional investigative efforts that may be required. Please do not hesitate to call.

Sincerely,

Norman N. Hantzsche, P.E.
Managing Engineer

RCE 24750

1220 BRICKYARD COVE ROAD
P.O. BOX 356 • POINT RICHMOND, CALIFORNIA 94807 • (415) 236-6114

SUBSURFACE INVESTIGATION OF SOIL AND GROUNDWATER CONTAMINATION

INTRODUCTION

This report presents the results of subsurface investigation of soils and groundwater for possible chemical contamination at JASCO Chemical Corporation's current manufacturing facility at 1710 Villa Street in Mt. View, California. The scope of work included:

- exploration drilling, soil logging, and installation of a monitoring well alongside the underground storage tanks;
- acquisition of soil and water samples from the test boring and monitoring well;
- laboratory analysis of soil and water samples for nine analytes.

The work was undertaken to determine whether or not leakage has occurred from the underground chemical storage facilities used by JASCO.

Questa Engineering Corporation provided engineering and overall project supervision. Drilling and well installation was performed by HEW Drilling Company, Inc. of Mt. View on May 24, 1984. Borings were logged and soil samples taken by John T. O'Rourke, CEG 419. Water sampling and laboratory analysis of soil and water samples was performed by ANATEC Laboratories, Inc., of Santa Rosa. Water samples were obtained on June 4 and June 14, 1984.

Well installation, soil and water sampling, and laboratory analyses were performed in accordance with procedures and material specifications presented in the San Francisco Bay Regional Water Quality Control Board's "General Guidelines for Subsurface Investigations". A detailed summary of field and laboratory methods and test results are presented in this report. The drilling log and well construction details are provided in attached plates at the end of the report.

SITE DESCRIPTION

Project Location

The project involved subsurface investigation at 1710 Villa Street in Mt. View. The site has been occupied by JASCO since the mid-1970's.

Mt. View (See Figure 1). Underground chemical storage facilities consist of nine tanks and associated piping. The tanks are clustered together alongside warehouse and operations buildings, and are covered beneath a paved concrete pad (See Figure 2).

Hydrogeology

The project site is underlain by predominantly fine-grained alluvial fan sediments carried down by streams from the Santa Cruz Mountains to the south. The sediments consist of silty to sandy clays, that become finer-grained toward the bay due to the decrease in the streams' gradient and carrying capacity; occasional lenses of more permeable sand and gravel are randomly found within the finer-grained sediments. These coarser sediments are the source of a number of unconfined groundwater aquifers, and perched or semi-perched groundwater zones of limited extent that occur within the upper 100 feet of the alluvial fan material. The major groundwater aquifers in the region are located in the older alluvium material at a depth of more than 200 feet; a relatively thick impervious clay zone, or aquiclude, up to 100 feet thick, separates the major aquifer from the upper groundwater zone. Groundwater will rise to within 10 to 30 meters of the ground surface in this area under an artesian head when the confined aquifer is penetrated by a well. The approximate direction of groundwater flow at the test site is indicated in Figure 2.

SOIL EXPLORATION AND WELL INSTALLATION

Drilling Methods

Exploration drilling at the project site in Mt. View was performed on May 24, 1984, and consisted of a single boring, designated V-1, of approximately 50-feet in depth. The boring was located adjacent to underground chemical storage tanks used by JASCO. As shown in Figure 2, the boring was located on the side of the tanks estimated to be in the direction of groundwater movement.

A log of the boring was recorded in the field by John T. O'Rourke (Engineering Geologist, CEG 419), who visually classified the soils in accordance with the Unified Soil Classification system. The boring log and soil classification notes are provided in Plates 1 and 2 at the end of this report.

The boring was drilled by a two-man crew from HEW Drilling Company, Inc., of Mountain View, California, using a truck-mounted CME-75 drill rig. An 8-inch outside diameter, hollow-stem (3.75-inch inside diameter), continuous flight auger was used to advance the borings, generally in accordance with ASTM D 1452-80.

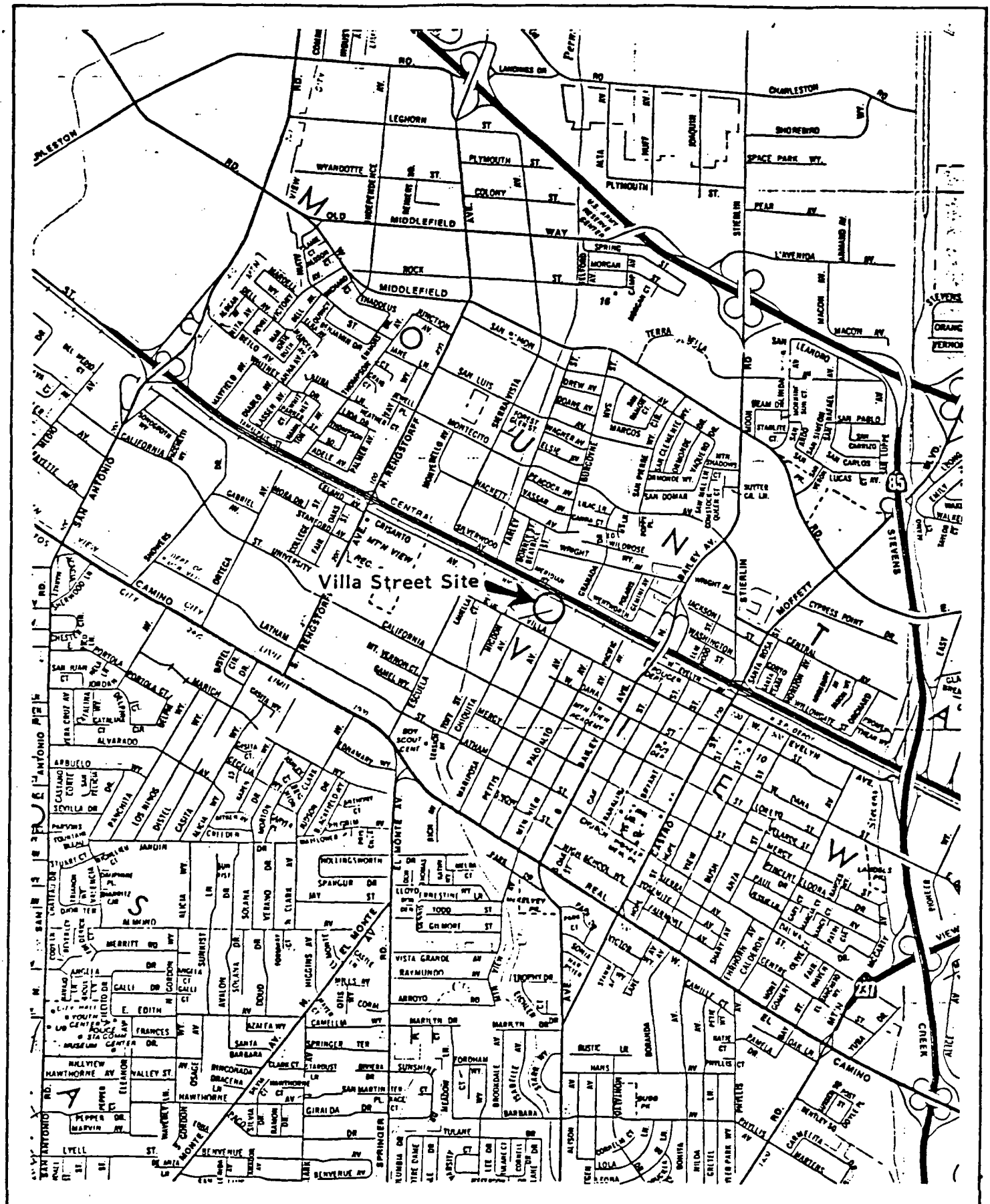
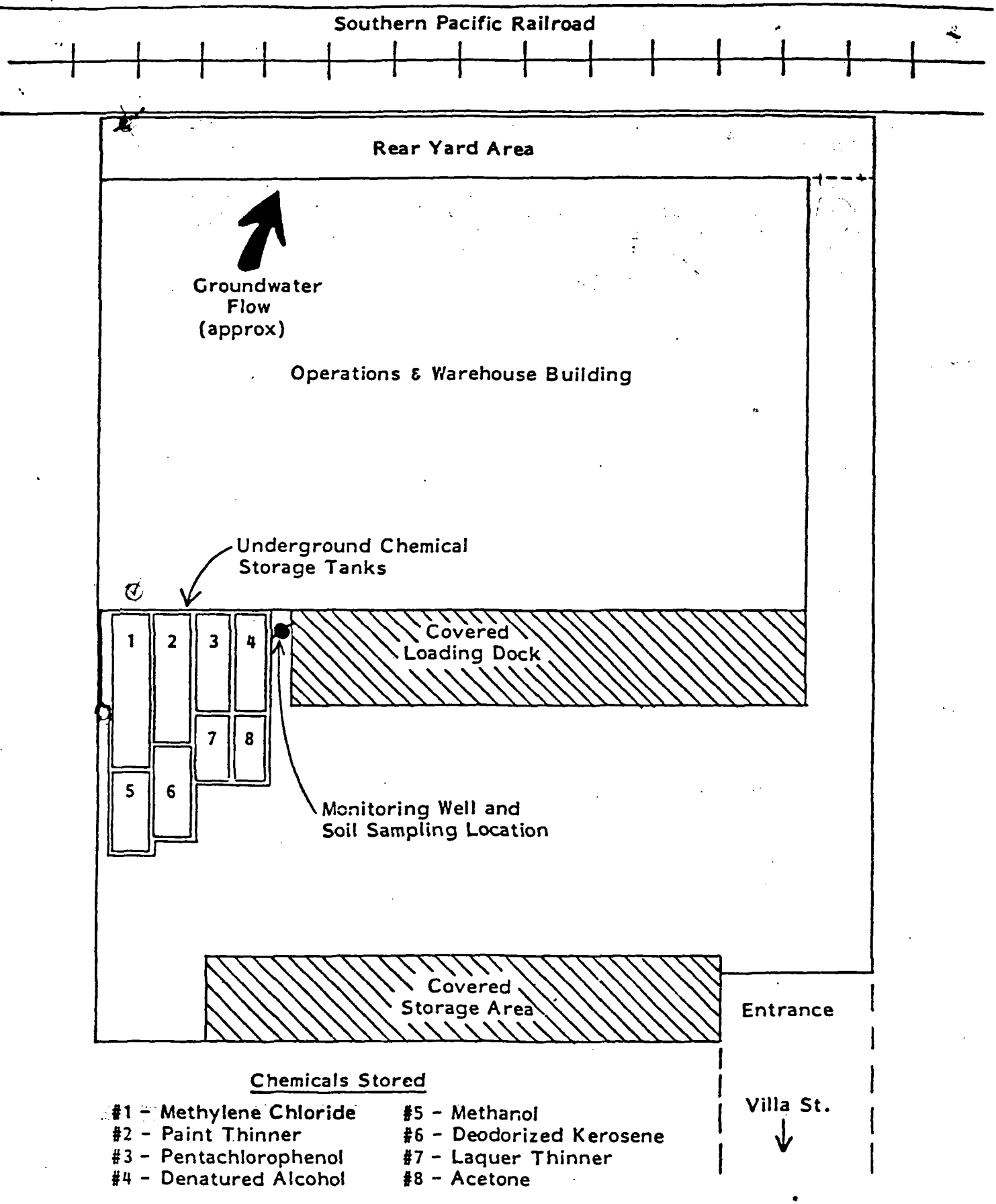


FIGURE 1

PROJECT LOCATION
JASCO CHEMICAL CORPORATION
MT. VIEW, CALIFORNIA

Questa Engineering Corp.
Pt. Richmond, Calif.



N

Scale 1" = 30'

FIGURE 2

VILLA STREET SITE MAP

Questa Engineering Corp.
Pt. Richmond, Calif.

Boring Summary

Silty to sandy clay was encountered in Boring V-1, and a 3-foot thick gravel zone, at a depth of 12.5 to 15 feet, may have also been placed as a base for the storage tanks (See Plate 1). Free water was encountered at a depth of 29 feet; it came from a perched groundwater zone in the coarse sediments at a depth of 29 to 35 feet. Fifteen feet of relatively impervious silty to sandy clay underlies this perched groundwater zone. A significant amount of groundwater was noted in the sandy to silty gravel at the bottom of the test boring, at a depth of 50.5 feet. Water level at completion of the boring was 24 feet below the ground surface.

Soil Samples

Soil samples, both disturbed from the auger flights and undisturbed from the split-barrel sampler, were used in visually classifying the materials. Penetration tests and split-barrel sampling were performed according to ASTM D 1586-67. Samples used for soil characterization were evaluated on-site, and have been retained for future reference, if needed.

Soil samples for chemical analysis were obtained from the bore hole during drilling operations by means of a California sampler fitted with pre-washed brass inserts. Samples from the boring were taken at five and ten-foot intervals below the estimated depth of the underground tanks. The brass liners were removed from the sampler, capped and labeled in the field upon collection. They were kept on ice in an insulated container during transit to the laboratory.

Well Installation

A monitoring well was installed in the boring. The well consisted of a 2-inch diameter PVC pipe (schedule 40, ASTM 1785), with the bottom end plugged and a cap at the surface, and the bottom 20 feet of pipe commercially slotted (approximately 0.010 inches). Coarse sand (aquarium No. 4) was used to backfill the hole from the bottom to between two and four feet above the top of the slotted pipe. A thick slurry of Portland cement/bentonite (approximate ratio 20:1) grout was used to seal the hole to the surface. An 8-inch I.D. circular concrete protective box (Christy box) with metal lid protects the pipe at the asphalt surface of the parking lot. Well construction details and initial water level measurement are shown in Plate 3 at the end of this report.

GROUNDWATER SAMPLING METHODS

Field work related to the acquisition of water samples from the monitoring well was conducted on June 4, 1984. Equipment and procedures used were consistent with those described in the San Francisco Regional Water Quality Control Board's "General Guidelines for Subsurface Investigations". Water samples for subsequent laboratory analyses were handled and preserved according to EPA methods described in the Federal Register (Volume 44, No. 233, Method 624). Prior to bailing and sampling, the well volume was calculated from static water depth, determined using a stainless steel tape.

Bailing

A stainless steel hand bailer (1.5" I.D. x 5') fitted with a Teflon check valve was used to evacuate static volumes from the well. In order to properly purge and develop the well, at least 8 well volumes were removed prior to sampling. The time of bailing and sampling, and the volume removed from the well are given below:

- Water Depth (Feet): 8;
- Static Volume (Gallons): 1.3;
- Bailing Time: 0900-0945 x hours;
- Volume Bailed (Gallons): 12;
- Sample Collection: 1015 hours.

In order to avoid contamination, a pre-cleaned bailer dedicated for use at the well was used. The unit was cleaned at the laboratory prior to use in the field. Cleaning was accomplished by soaking the bailer in concentrated trisodium phosphate solution followed by successive rinses with tap water, 10 percent hydrochloric acid, tap water, then distilled water. The bailer was sealed with aluminum foil prior to transit to the site.

Sampling

The water sample was collected in a pre-cleaned glass vial (40 ml) fitted with Teflon lid liner. Aeration of the water sample was avoided during transfer of water from the bailer to the vial. Upon collection, the sample was placed on ice and transported to the laboratory on the day of collection. It should be noted that, because of technical problems which invalidated sample analysis for pentachlorophenol, it was necessary to conduct an additional collection effort. A water sample for subsequent analysis for only this constituent was obtained on June 14. Four volumes were removed from the well prior to sample collection.

LABORATORY METHODS

The water and soil samples were analyzed to measure content of purgeable solvents (methanol, dichloromethane, paint thinner, deodorized kerosene, lacquer thinner, acetone, denatured ethanol, isopropanol) and of pentachlorophenol (PCP).

The purgeable constituents were analyzed using purge and trap gas chromatography with flame ionization detection (GC/FID) as described in EPA Method 601. Sodium chloride was added to each sample to enhance purging efficiency of polar compounds. The sample chromatograms for the purgeable components were compared to reference chromatograms of the analytes. Solutions of methanol, dichloromethane, acetone, and isopropanol were obtained from Spectrum Chemicals. The remaining reference materials used were JASCO Lacquer Thinner, Parks Paint Thinner and Parks Deodorized Kerosene.

The PCP method used for the water sample is derived from "The Determination of Pentachlorophenol in Natural and Waste Waters", Chan et.al. Journal of AOAC (Vol. 57, No. 2, 1974). The method is based on gas chromatography with electron capture detection (GC/ECD) of the acetate derivative of PCP.

The PCP content of the soils was measured using GC/ECD of underivatized PCP following solvent extraction. The soil samples were prepared for chromatography using soxhlet extraction as prescribed in Method 3540 from SW 846 "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, U.S. Environmental Protection Agency (EPA). Chromatography conditions are described in U.S. EPA Method 604.

RESULTS

Results of chemical analysis of soil and groundwater samples are presented in Table 1. The following are indicated:

- All chemicals known to have been used or stored by JASCO were determined to be below analytical detection limits in soil samples.
- Chemicals stored by JASCO and found above detection limits in groundwater were:

  - pentachlorophenol (PCP) - 0.2 ug/l;
  - acetone - 98 ug/l;
  - methanol - 95 ug/l;
  - paint thinner - 860 ug/l.

- Chemicals not reportedly used or stored by JASCO, but which were found in relatively small, but detectable, concentrations in soils or groundwater included:

  - methyl ethyl ketone (MEK);
  - 1,1,1 - Trichloroethane (TCA);

TABLE 1

Results Of Chemical Analysis

Analyte	Soil Composite (ug/Kg)	Water (ug/L)	Field Blank (ug/L)
Pentachlorophenol	< 10	0.2	< 0.1
Purgeable Solvents:			
Requested Compounds			
Acetone	< 20	98	< 10
Deodorized Kerosene[1]	< 1000	< 200	< 200
Dichloromethane	< 20	< 5	< 5
Ethanol	< 100	< 20	< 20
Isopropanol	< 100	< 30	< 30
Lacquer Thinner[2]	< 20	< 5	< 5
Methanol	< 100	95	< 30
Paint Thinner[3]	< 600	860	< 100
Other Compounds[4]			
Methyl ethyl ketone	< 30	4	< 4
1, 1, 1-Trichloroethane	< 5	9	< 1
Trichloroethylene	< 5	< 9	< 1
Unidentified peaks	0	0	0

1. Parks brand deodorized kerosene
2. JASCO brand lacquer thinner
3. Parks brand paint thinner
4. Compounds detected in samples, but not reportedly stored on JASCO site

DISCUSSION

The findings of this investigation indicate the presence of small concentrations of several chemicals in soils and groundwater beneath the current JASCO Chemical Corporation Villa Street site. Included are four chemicals that are used and stored by JASCO, along with two additional industrial chemicals not identifiable with JASCO operations (MEK and TCA). The site shows evidence of possible leakage or spillage of three chemicals - acetone, methanol and paint thinner. The concentrations of acetone and methanol are at levels that could be due to a small amount of leakage or periodic spillage. The concentration of paint thinner (860 ug/l) may be an indication of a larger problem. It is possible that these chemicals have entered the groundwater along with runoff into the dry well situated on the JASCO property. Regardless of the exact source of contamination, it is probable that the local (City of Mt. View) and state (Water Quality Control Board) regulatory agencies will seek further identification of the extent and severity of the problem when advised of the results of this preliminary investigation. We would recommend that the tanks and piping systems for the acetone, methanol and paint thinner storage units be inspected to directly evaluate these possible sources of contamination. If leakage is occuring, the eventual containment and clean-up requirements will be greatly aided by early detection and correction of the source of the problem. In addition to tank inspection, periodic sampling of groundwater should be continued to monitor possible changes in the contaminant concentrations.

In regard to the presence of MEK and TCA, the concentrations are below the nominal action level of 10 ug/l. Also, it is possible that the observed concentrations in groundwater are due to other (off-site) industrial activities in the area

BORING LOG: V-1
LOCATION: 1710 Villa Street, Mountain View, California
ELEVATION: 62 feet (approximately) U.S.G.S. Datum
DATE & TIME DRILLED: May 24, 1984 (1500 to 1740 Hours)
WATER LEVEL: Free water encontered at 29 feet; at completion of drilling water level 24 feet below the ground surface.

DEPTH IN FEET	BLOWS/FOOT	DESCRIPTION
0 - 0.2		AC paving and base material
0.2 - 11		Grayish brown (5YR 3/2) silty clay (CL) medium stiff, damp. Some gravel at 8 feet.
11 - 12.5		Moderate brown (5YR 3/4) silty clay (CL) medium stiff, moist.
12.5 - 15		Medium gray (N 5) sandstone fragments (SP) angular, up to 1/2 inch dia.
15 - 20		Dark yellowish brown (10YR 4/2) silty clay (CL), stiff, moist.
15.5	50	Undisturbed soil sample. Grades gravelly and wet at 17 feet
20 - 25		Grayish olive (10Y 4/2) silty clay (CL) containing well preserved gastropods shells up to 0.3 inches long, stiff, damp.
20.5	37	Undisturbed soil sample.
25 - 35		Dark grayish green (5G 4/2) silty to sandy clay (CL to ML) with some peat and rock fragments, stiff, wet.
25.5	40	Undisturbed soil sample.
30.5	22	Undisturbed soil sample. Increase in rock fragments, up to 1 inch in dia., fragments appear to be composed of serpentine, soft, saturated.
35 - 50		Olive gray (5Y 3/2) silty to sandy clay (CL to ML) with occassional rock fragment, stiff, damp.
50.5	50 blows for 3"	Disturbed soil sample. Fine-grained sandy to silty gravel (SW), angular to subangular, up to 1/2 inch in dia. (average size 0.02"), loose, saturated.

BOTTOM OF BORING

UNIFIED SOIL CLASSIFICATION

Major Divisions			Group Symbols	Typical Names	Field Identification Procedures (Excluding particles larger than 3 inches and basing fractions on estimated weights)		
1	2		3	4	5		
Coarse-grained Soils: More than half of material is larger than No. 200 sieve size. The No. 200 sieve size is about the smallest particle visible to the naked eye.	Gravels: More than half of coarse fraction is larger than No. 4 sieve size. (For visual classification, the ¼ in. size may be used as equivalent to the No. 4 sieve size)	Clean Gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines.	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.		
			GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.		
		Gravels with Fines (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures.	Nonplastic fines or fines with low plasticity. (for identification procedures see ML below)		
			GC	Clayey gravels, gravel-sand-clay mixtures.	Plastic fines (for identification procedures see CL below).		
	Sands: More than half of coarse fraction is smaller than No. 4 sieve size. (For visual classification, the ¼ in. size may be used as equivalent to the No. 4 sieve size)	Clean Sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines.	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.		
			SP	Poorly-graded sands, gravelly sands, little or no fines.	Predominantly one size or a range of sizes with some intermediate sizes missing.		
		Sands with Fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures.	Nonplastic fines or fines with low plasticity. (for identification procedures see ML below)		
			SC	Clayey sands, sand-clay mixtures.	Plastic fines (for identification procedures see CL below).		
Fine-grained Soils: More than half of material is smaller than No. 200 sieve size. The No. 200 sieve size is about the smallest particle visible to the naked eye.	Silts and Clays: Liquid limit less than 50				Identification Procedures on Fraction Smaller than No. 40 Sieve Size		
					Dry Strength (Crushing characteristics)	Dilatancy (Reaction to shaking)	Toughness (Consistency near PL)
			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.	None to slight	Quick to slow	None
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.	Medium to high	None to very slow	Medium
			OL	Organic silts and organic silty clays of low plasticity.	Slight to medium	Slow	Slight
	Silts and Clays: Liquid limit greater than 50		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.	Slight to medium	Slow to none	Slight to medium
			CH	Inorganic clays of high plasticity, fat clays.	High to very high	None	High
			OH	Organic clays of medium to high plasticity, organic silts.	Medium to high	None to very slow	Slight to medium
Highly Organic Soils			Pt	Peat and other highly organic soils.	Readily identified by color, odor, spongy feel and frequently by fibrous texture.		

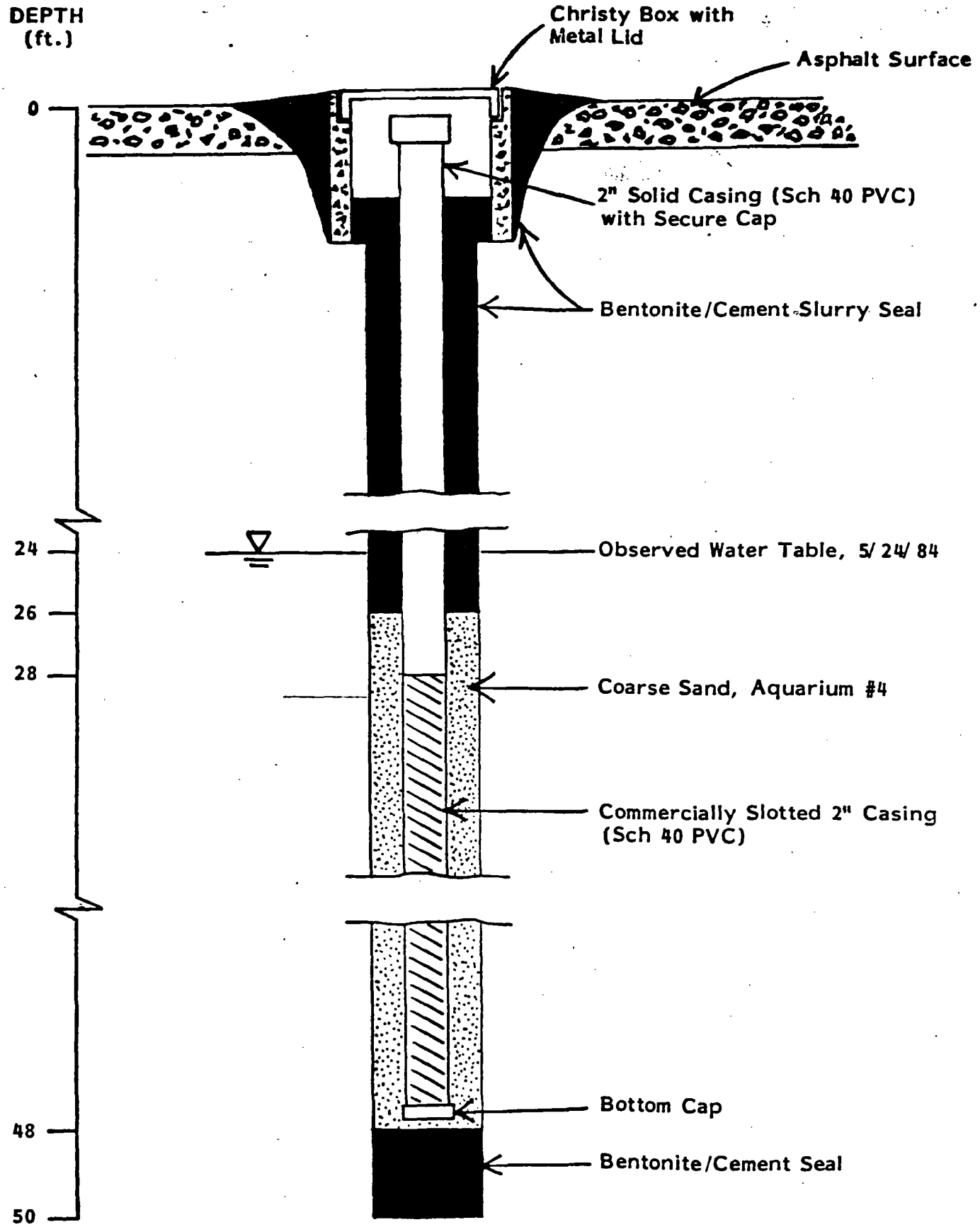
NOTES:

1. Borings were made with a truck-mounted drill rig with an 8-inch diameter hollow stem auger.
2. Undisturbed soil samples were taken in a 2½-inch diameter split tube barrel driven into the soil by 140 pound slip-jars falling 30 inches inside the boring.
3. Munsell numerical designation is also given for soil color.
4. Monitoring wells were installed at the boring location by placing a 2-inch diameter, factory slotted PVC (Schedule 40) pipe, with screw connections, surrounded with #4 filter sand. A concrete seal and Cristy Box were installed at the upper portion of the well.
5. It is assumed that the bottom of the underground chemical storage tanks is as a depth of 10 feet.
6. The boring logs show subsurface conditions on the dates and at the locations indicated, and it is not warranted that they are representative of subsurface conditions at other times or locations.

Questa Engineering Corp.

PLATE 3

V-1 WELL CONSTRUCTION DETAILS



APPENDIX B

Preliminary Report

Shallow Soil Gas Investigation

JASCO Chemical Corporation

Mountain View, California

Prepared for:

JASCO CHEMICAL CORPORATION

January 19, 1987

WAHLER ASSOCIATES

Geotechnical Engineers
1023 Corporation Way
Palo Alto, California 94303
Telephone (415) 968-6250

Project JCO-101H

PRELIMINARY REPORT
SHALLOW SOIL GAS INVESTIGATION
JASCO CHEMICAL CORPORATION
MOUNTAIN VIEW, CALIFORNIA

EXECUTIVE SUMMARY

Wahler Associates (WA) were retained by JASCO Chemical Corporation to conduct a shallow soil gas investigation of the JASCO site and surrounding area. The purpose of this investigation was to assess the existence of on-site chemical and to determine the areal extent of chemicals. The soil gas investigation results indicate that concentrations of methylene chloride have been found on-site and on properties to the north, west and east of the JASCO site. Various levels of 1,1,1-trichlorethane (1,1,1-TCA) were found at the JASCO site, to the west of the site and at one probe location north of the site. Detectable levels of TCA were found to the east and north of the JASCO facility. Low concentrations of trichlorethene (TCE) and tetrachloroethene (PCE) were found on and adjacent to the JASCO site. Benzene and xylene were detected on-site at two probe locations. Xylene was detected at two on-site probe locations as well as in low concentration at one probe location to the east of the site.

The soil gas investigation results indicate that on and off-site chemical concentrations do exist at the JASCO facility. Further focused investigation of the vertical and horizontal extent of chemicals in the ground water is needed to determine the exact type of remedial action that should be undertaken.

According to the management of JASCO, several of the chemicals indicated by the gas survey have never been used on this site during JASCO's occupancy.

A. INTRODUCTION

Wahler Associates were retained by JASCO Chemical Corporation (JASCO) to perform a shallow soil gas investigation at the JASCO facility, 1710 Villa

Street, Mountain View, California. An initial investigation conducted by Questa Engineering Corporation (Questa), indicated the presence of volatile organic compound (VOC) chemicals at the JASCO site. The Questa investigation consisted of the installation of three on-site monitoring wells, and the sampling and analysis of ground water samples taken from the wells.

The shallow soil gas investigation was performed to assess the areal extent of on and off-site subusrface chemicals and, therefore possible shallow (A) aquifer contamination and to provide guidance in siting the next phase of monitoring wells. Shallow soil gas sampling was chosen as a preliminary procedure for assessing the existence of, and mapping the areal extent of subsurface chemicals at the JASCO site, in lieu of more conventional techniques, such as additional monitoring well installation, because it is quicker, less expensive, and may possibly provide greater plume resolution. In addition, the information obtained through the soil gas survey may then be used to select the appropriate number of ground water monitoring wells needed to track the movement of the chemical plume.

Two series of water level measurements were taken from the three on-site monitoring wells installed by Questa to provide estimates of the direction of shallow ground water flow and hydraulic gradient beneath the site; these data will also be presented in this report.

B. SHALLOW SOIL GAS INVESTIGATION AND WATER ELEVATION MEASUREMENTS

1. Introduction

A shallow soil gas investigation was undertaken to assess the areal extent of shallow subsurface chemical concentrations, and to determine optimum locations for further monitoring well installation. WA retained Tracer Research Corporation (TRC) to conduct the field program. Soil gas collection and analyses were performed by a TRC chemist and a TRC hydrogeologist under the supervision of WA personnel.

2. Soil Gas Sampling Procedure

The sampling of shallow (6 feet deep) soil gas was performed by a field analytical van equipped with gas chromotographic instruments and hydraulic machinery capable of driving and withdrawing (one-inch) diameter, nine-foot long Schedule 40 galvanized steel probes. The probe driving mechanism consisted of two hydraulic cylinders and a set of hydraulic jaws which gripped the soil gas probe. Probes were driven by the weight of the van and assisted by a vehicle-mounted hydraulic hammer when the weight of the van itself was not sufficient to drive the probes. The hydraulic hammer was frequently used at the JASCO site, because of silty clay having been encountered from just below grade to the maximum penetrated depth of 10.5 feet. Silty clay was found from 0 to 11 feet in all three on-site borings completed by Questa. WA's original field program called for paired soil gas and ground water sampling at each probe location. However, such slow progress was made below a depth of 6 feet, that it was estimated it would have taken 1.5 to 2 hours to reach ground water at each of the three probe locations where ground water sampling was to have been attempted; therefore the ground water sampling portion of the field program was discontinued. On average, the probes were driven to a depth of 6 feet. The above ground end of the probes were then fitted with a stainless steel reducer and a section of silicone tubing which led to an electric vacuum pump capable of extracting two liters of soil gas per minute. The probe was then withdrawn from 0.5 to 4.5 feet to permit both the decoupling of the steel collection tube from the cast iron drive point used to penetrate the soil layers and to ensure a steady flow of soil gas. Samples were collected using 2-ml glass syringes and injected directly into a gas chromotograph (GC) in the field analytical van.

3. Study Sample Locations

Soil gas samples were collected along five transect lines covering the study area (Figures 2 and 3). Transect T consists of three probes completed adjacent to the underground storage tanks. The two probes comprising

transect B, completed upgradient from any chemical handling facilities, were taken to determine the probable southern boundary of chemical concentrations. Transect J, consisting of four probes completed at the northern end of the JASCO facility, was performed to determine the probable east-west lateral extent of the contamination plume. Transect M, three probes taken on the median of the Central Expressway, and Transect S, two probes taken on the northern shoulder of the Central Expressway, were completed to determine the probable northern boundary of chemical concentrations.

4. Shallow Soil Gas Investigation Results

Results of the soil gas investigation are presented in Table 1. Where a "less than" symbol precedes a concentration value on the table, the constituent was not detected and the level represents the limit of detection. Maps of constituent isoconcentration are presented on Figures 4 through 10.

The results of the soil gas investigation indicate that 1,1,1-trichlorethane and methylene chloride are the constituents exhibiting the widest areal extent of chemical concentration. Maps of methylene chloride and 1,1,1-TCA isoconcentration are presented on Figures 4 and 5. Methylene chloride is detected at probe locations on the median and northern shoulder of the Central Expressway indicating that chemicals in the ground water may extend to these locations. The highest methylene chloride values, 150,000 ppb and 370,000 ppb, were observed adjacent to the underground storage tank area at probe locations T-1 and T-3 (Figure 4). The methylene chloride value observed at T-2, 590 ppb is three orders of magnitude less than those observed at T-1 and T-3, which are 22 feet and 35 feet up-gradient from T-2, see Figures 2 and 4. Probes T-1 and T-3 were taken through soil at the edge of the concrete pad that covers the JASCO storage and production area, see Figure 2. Probe T-2 was taken through a portion of the concrete pad that had been recently removed to install monitoring well V-3 and to check the integrity of pipes that extend from the storage tanks to the JASCO production area.

If the underground methylene chloride storage tank has been the source of the chemical, it would be expected that methylene chloride soil gas values would be similar, at least in the same order of magnitude, at probes T-1, T-2, and T-3, all taken within 40 feet of one another. The fact that T-2, which was covered by the concrete pad for the majority of JASCO's occupation of the site, shows such a markedly lower value than T-1 and T-3, which have not been covered by concrete, points towards accidental surface spillage in the vicinity of the storage tank, not underground tank leakage possibly being the source of methylene chloride of JASCO.

In addition, a test of the methylene chloride storage tank and associated piping, performed by Accutite Tank Testing and Maintenance, showed the system to be tight.

Peaks in 1,1,1-TCA concentration are observed at Transect T probes near the storage facility, at probes J-4, J-5 and J-6 and at S-2 on the shoulder of the Central Expressway, see Figure 5. 1,1,1-TCA is stored on-site in 55-gallon drums, not in an underground tank. The same discrepancy in concentration values, as observed at T-1 and T-3 versus T-2 for methylene chloride is also observed for 1,1,1-TCA, see Figure 5. Therefore, accidential surface spillage may be the source of 1,1,1-TCA concentrations observed at JASCO. Trichlorethene (TCE) and tetrachloroethene (PCE) are observed at low concentrations on and adjacent to the site, see Figures 6 and 7.

Lastly, benzene, toluene and xylene have been found at two probes, T-1 and T-2, see Figures 8, 9, and 10. A large discrepancy exists in the concentrations of benzene, toluene and xylene observed at probes T-1 and T-3, see Figures B-8 and B-10. The two probes were taken only 13 feet from one another. This leaves doubt, as to the accuracy of the hydrocarbon data that were collected at probe location T-2.

5. Water Elevation Measurements

Two episodes of water level measurements were performed on monitoring wells V-1, V-2, and V-3, installed by Questa Engineering, see Figure 2. The data are summarized in Table 2. An accurate estimate of ground water flow direction could not be made due to the close proximity of wells V-1 and V-3. Based on the data at hand, ground water flow in the shallow (A) aquifer beneath the JASCO site is towards the north to north-northeast, following the natural slope of the ground surface, see Figure 11. The shallow (A) aquifer horizontal hydraulic gradient values for December, 1986 and January, 1987 are presented in Table 2.

6. Quality Control/Quality Assurance Procedures

The following set of quality assurance/quality control procedures were followed by TRC in order to prevent any cross-contamination of soil gas samples.

- Steel probes were used only once during the day and then washed with high pressure soap and hot water spray or steam-cleaned to eliminate the possibility of cross-contamination. Enough probes were carried on the van to avoid the need to reuse any during the day.

- Probe adaptors (steel reducer and tubing) were used once during the course of the day and cleaned at the end of the day by baking in the GC oven. The tubing was replaced periodically as needed during the job to ensure cleanliness and good fit.

- Silicone tubing (connecting the adaptor to the vacuum pump) was replaced as needed to ensure proper sealing around the syringe needle. This tubing did not directly contact soil gas samples.

- Glass syringes were used for only one sample per day and were washed and baked out before and after the survey.

- Septa, through which soil gas samples were injected into the chromatograph, were replaced before and at the end of the day to prevent possible gas leaks from the chromatographic column.

- Analytical instruments were calibrated at the beginning of the day by the use of chemical standards prepared in water by serial dilution from commercially available pure chemicals. Calibration checks were also run after approximately every five soil gas sampling locations.

- Two-cc subsampling syringes were checked for contamination at the beginning of the day by injecting nitrogen carrier gas into the gas chromatograph.

- Prior to sampling, system blanks were run to check the sampling apparatus (probe, adaptor, 1-cc syringe) for contamination by drawing ambient air from above ground through the system and comparing the analysis to a concurrently analyzed air sample.

- All sampling and 2 cc subsampling syringes were decontaminated before the survey and no such equipment was reused before being decontaminated. Microliter size subsampling syringes were reused only after a nitrogen carrier gas blank was run to ensure it was not contaminated by the previous sample.

- Soil gas pumping was monitored by a vacuum gauge to ensure that an adequate gas flow from the vadose zone was maintained. A negative pressure (vacuum) of 2-inch Hg less than the maximum capacity of the pump (evacuation rate 0.02 cfm) usually meant that a reliable gas sample could not be obtained because the soil had a very low air permeability.

C. LIMITATIONS AND RECOMMENDATIONS

The above discussion is a preliminary draft report, not a final document, limited by the time of preparation. This report was prepared in general

accordance with the accepted standards of practice which exist in northern California at the time the investigation was performed.

It should be recognized that definition and evaluation of geologic conditions with limited data is a difficult and inexact process. Judgements leading to conclusions and recommendations are generally made with an incomplete knowledge of the subsurface conditions present. More extensive studies including additional subsurface investigations can tend to reduce the inherent uncertainties associated with studies of this type.

Based on the results of the soil investigation, WA recommends that further investigation of the lateral and vertical extent of chemical concentrations in the soil and ground water be undertaken. To test the hypothesis that surface spillage is responsible for the contamination, a vertical series of soil samples should be taken from the exposed soil area adjacent to the underground storage facility. These samples should be analyzed to determine the variation of chemical concentration with depth. At this stage, WA recommends that three or possibly four shallow (A) aquifer monitoring wells be installed adjacent to the JASCO site to assess the general boundaries of chemicals in the ground.

TABLE 1

SHALLOW SOIL GAS INVESTIGATION RESULTS

CONTAMINANT			CH_2Cl_2	TCA	TCE	PCE
sample	depth	date	(ppb)	(ppb)	(ppb)	(ppb)
SGB1	4'	12/19	4,200	2	<0.04	0.4
SGB2	1.5'	12/19	73	7	<0.06	0.5
SGJ1	3.5'	12/19	180	1	0.1	0.4
SGJ4A	3'	12/19	9,100	7,700	<0.04	2
SGJ5	2'	12/19	<30	380	8	10
SGJ6	2.5'	12/19	<9	56	<0.04	2
SGM1	3.5'	12/19	<3	0.8	<0.04	0.4
SGM2	2'	12/19	420	1	<0.04	0.3
SGM3	3'	12/19	240	0.4	<0.04	0.1
SGS1	3.5'	12/19	400	0.3	<0.04	0.4
SGS2	6'	12/19	88	190	<0.04	0.2
SGT1	5.5'	12/19	150,000	170	7	82
SGT2	5.5'	12/19	590	0.8	<0.04	2
SGT3	1.5'	12/19	370,000	2,000	<6	14
N_2Blk		12/19	3	<0.02	<0.04	<0.01
Air		12/19	290	0.4	<0.04	2
Sys Blk		12/19	390	10	<0.04	2
Air		12/19	390	2	<0.04	0.9
N_2Blk		k2/19	290	2	4	0.8
Air		12/19	294	0.4	<0.04	0.4

TABLE 1
(cont.)

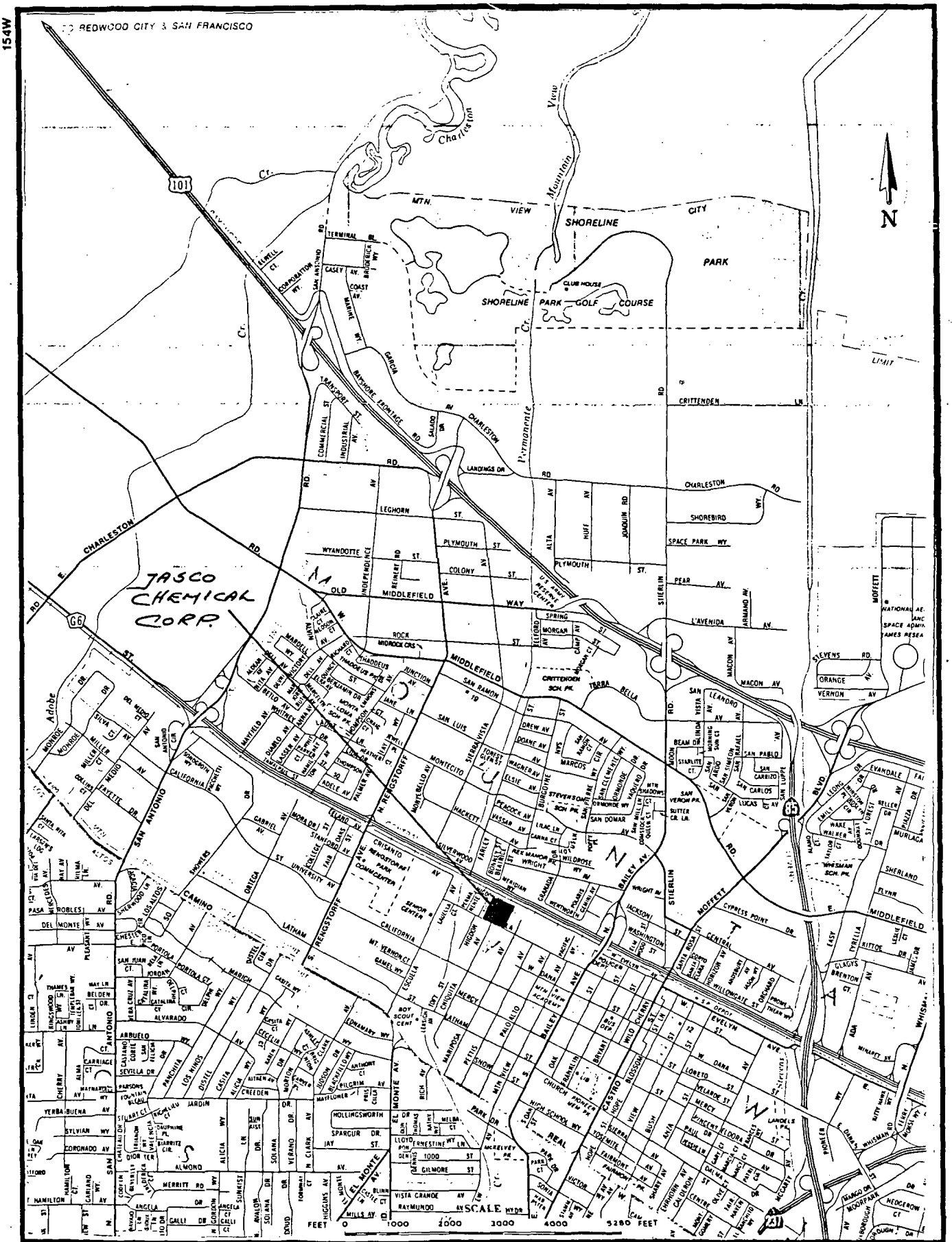
SHALLOW SOIL GAS INVESTIGATION RESULTS

CONTAMINANT			Benzene	Toluene	Xylene	
sample	depth	date	(ppb)	(ppb)	(ppb)	
SGB1	4'	12/19	6	<8	<7	
SGB2	1.5'	12/19	<6	<8	<7	
SGJ1	3.5'	12/19	<6	11	<12	
SGJ4A			N/A	N/A	N/A	
SGJ5	2'	12/19	<16	<13	14	
SGJ6	2.5'	12/19	<16	<16	<12	
SGM1	2.5'	12/19	<6	<8	<7	
SGM2	2'	12/19	<6	<6	<7	
SGM3	3'	12/19	<6	<8	<7	
SGS1	3.5'	12/19	<6	<5	<5	
SGS2	6'	12/19	<6	<8	<7	
SGT1	5.5'	12/19	2,200	94,000	160,000	
SGT2	5.5'	12/19	64	110	70	
SGT3	3'	12/19	<64	<8	<7	

TABLE 2

JASCO CHEMICAL CORPORATION MONITORING WELLS
SHALLOW AQUIFER WATER LEVEL ELEVATION (FEET MSL)

Monitoring Well	December 17, 1986	January 14, 1987
V-1	31.31	31.28
V-2	30.85	30.67
V-3	31.37	31.28
Approximate horizontal Hydraulic Gradient	0.004	0.005



Wahler Associates	JASCO CHEMICAL CORP. SHALLOW SOIL GAS INVESTIGATION	Location of JASCO Chemical Corporation	
PALO ALTO • NEWPORT BEACH • DENVER		PROJECT NO.	DATE	FIGURE NO.
		JCO-101H	JAN. 1987	1

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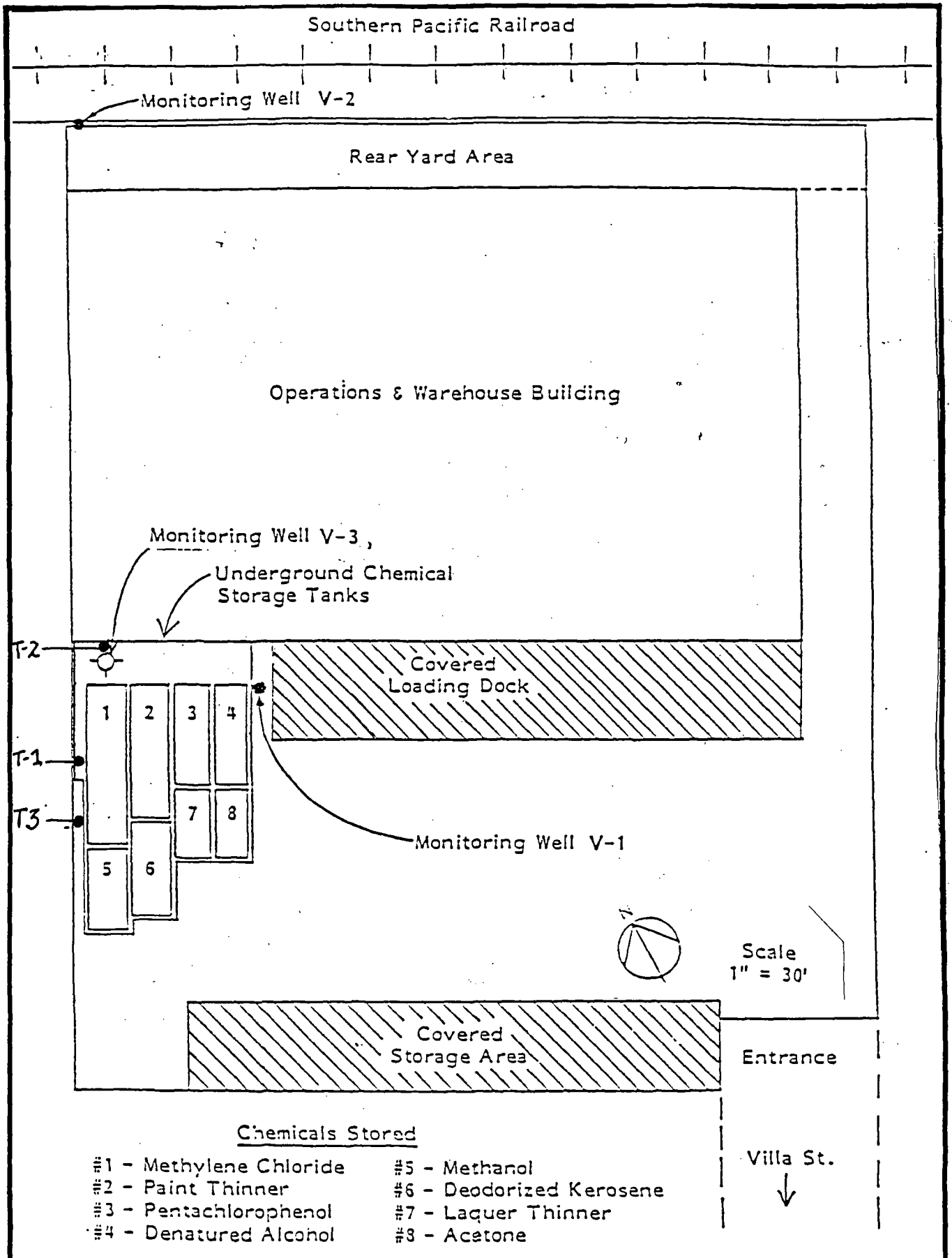

Wahler Associates	JASCO CHEMICAL CORP. SHALLOW SOIL GAS INVESTIGATION	Site Map, adapted from Quanta Engineering, 1984		
PALO ALTO • NEWPORT BEACH • DENVER		PROJECT NO.	DATE	FIGURE NO.
		JCO - 101H	JAN. 1987	2

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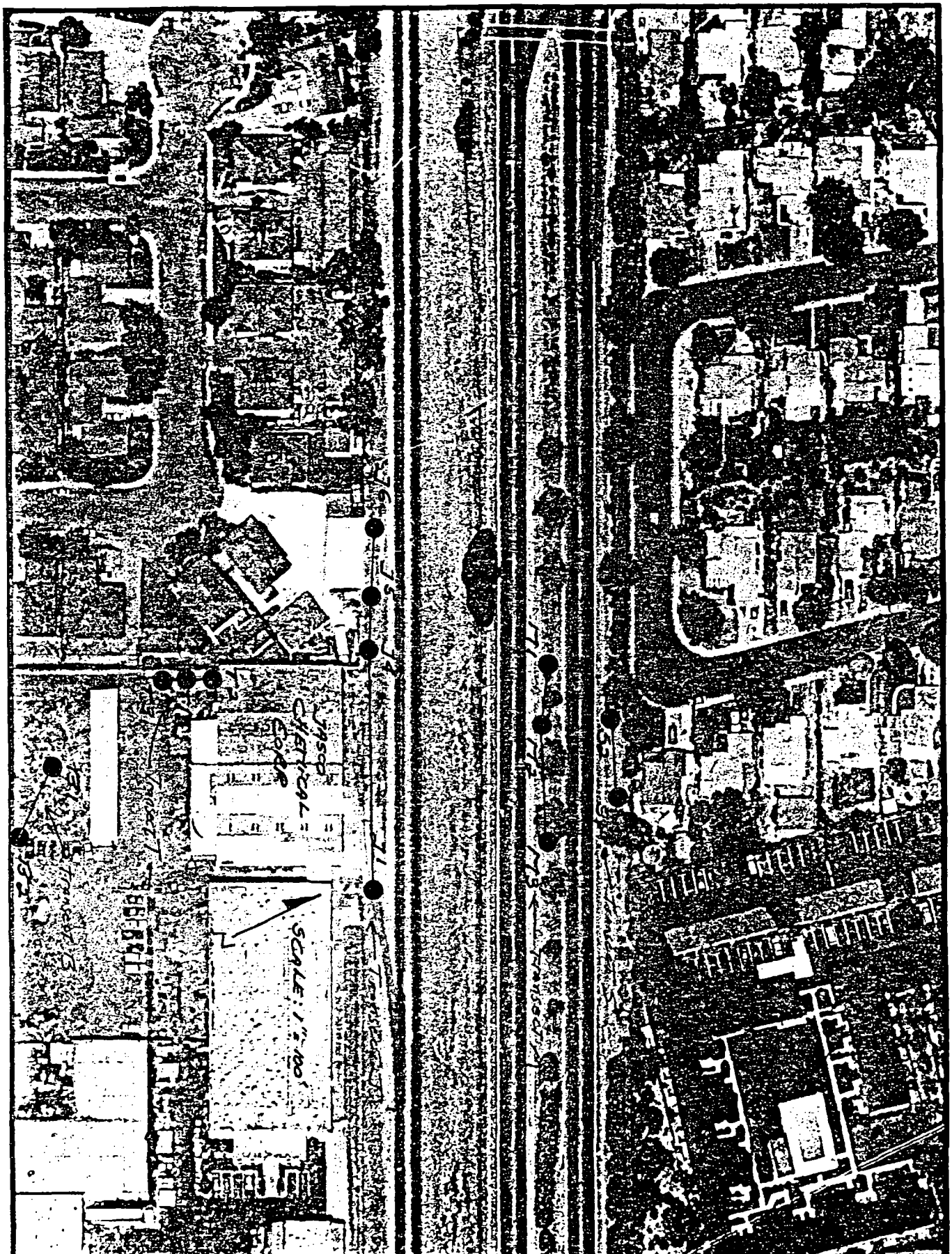
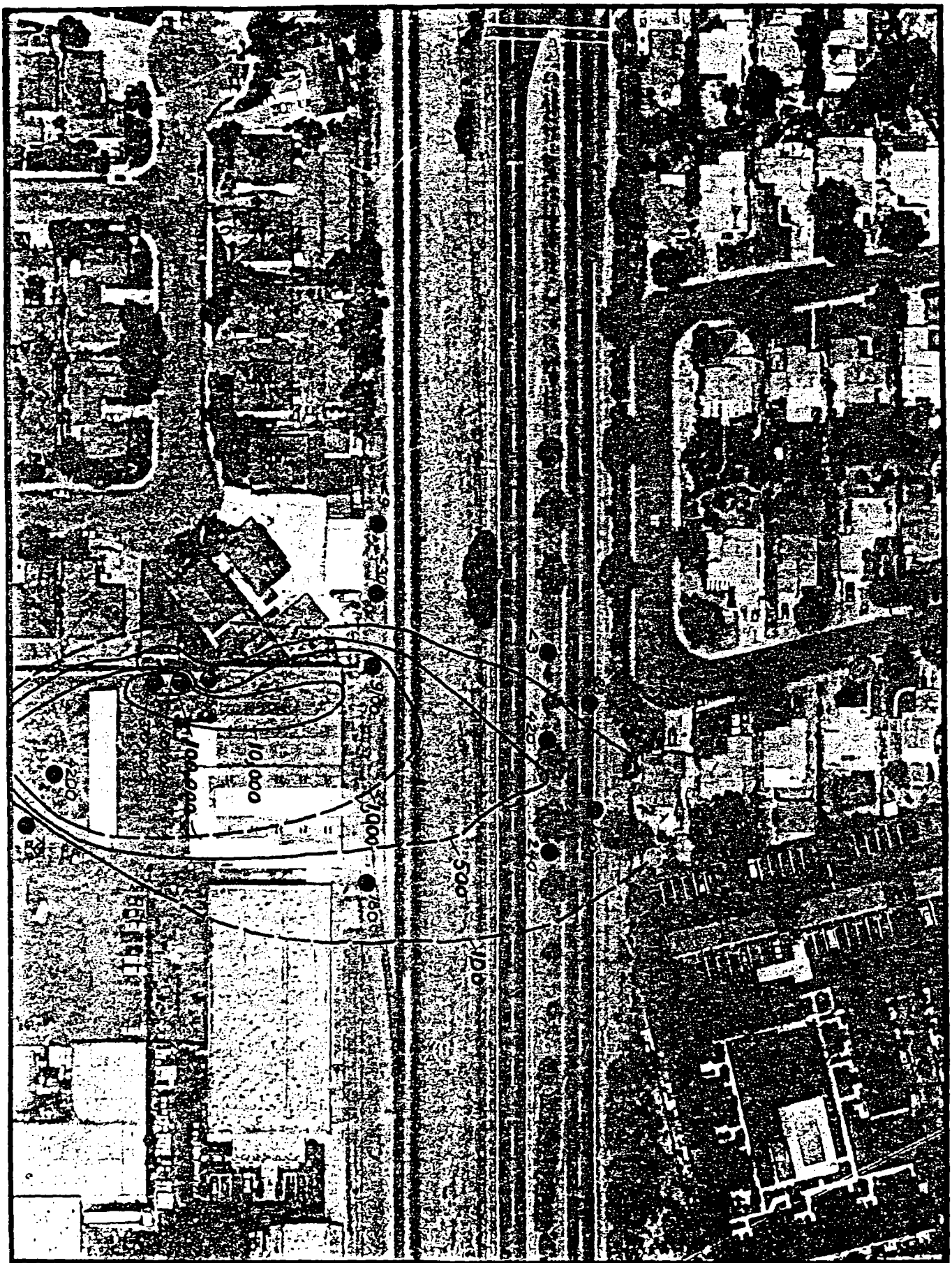
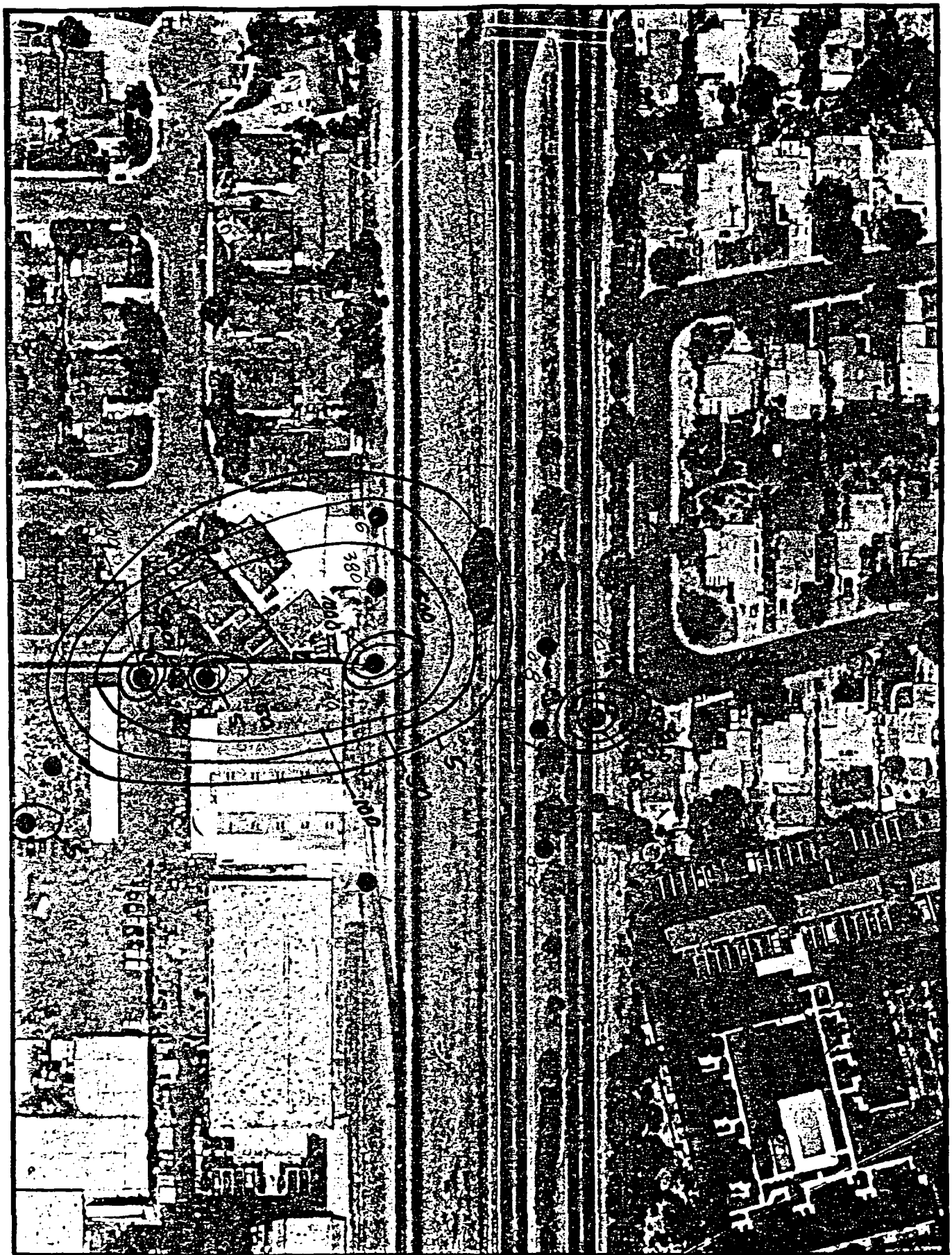


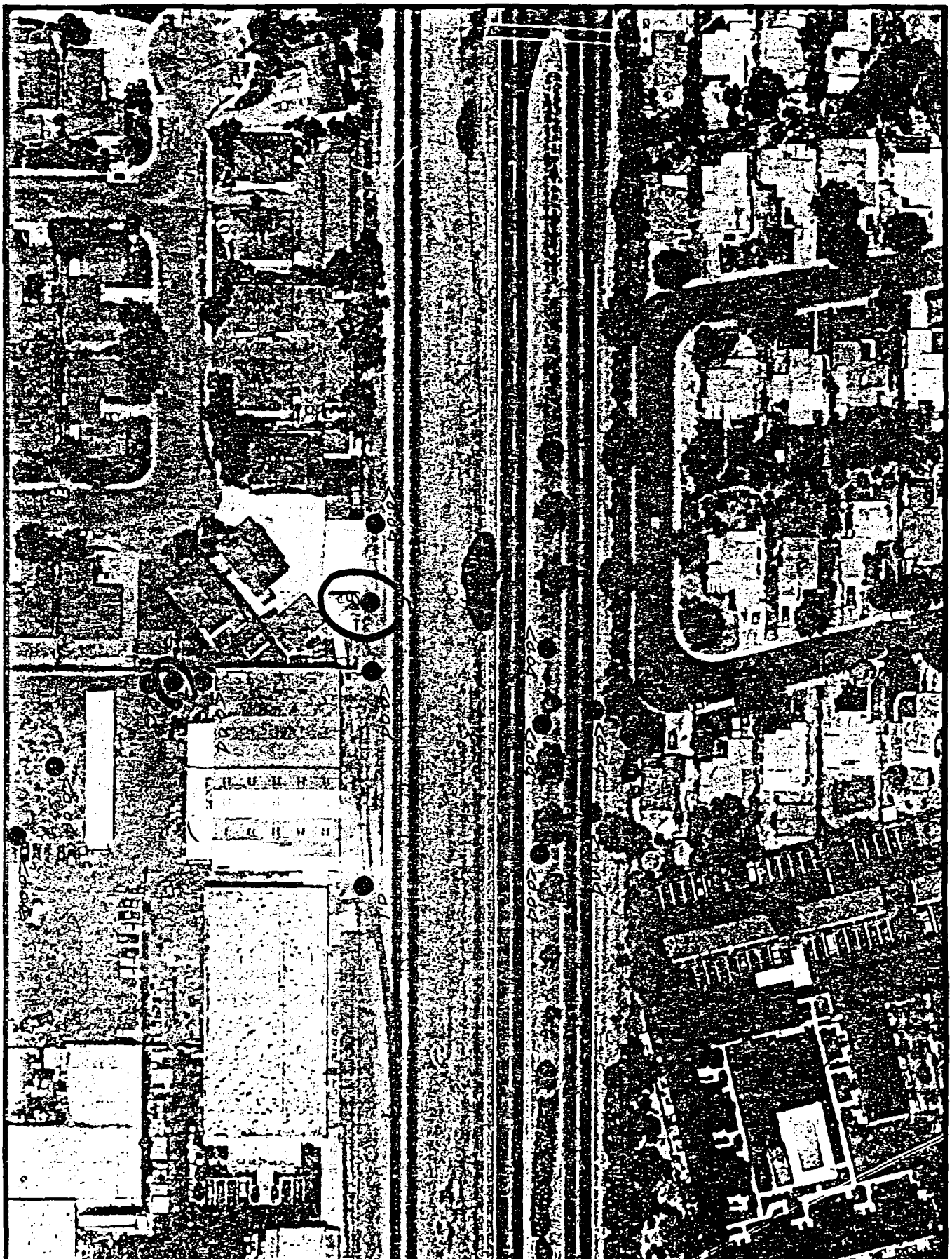
Wahler Associates	JASCO Chemical Corporation Shallow Soil GAS Investigation	Location of Soil gas Sampling Points	
		PROJECT NO.	DATE	FIGURE NO.
		JCO-1011	JAN. 1987	3



Wahler Associates	JASCO CHEMICAL CORP. SHALLOW SOIL GAS INVESTIGATION	INFERRED ISOCONCENTRATION LINES FOR METHYLENE CLORIDE (IN PPB)		
		PROJECT NO.	DATE	FIGURE NO.
		360-01H	JAN. 1987	4



Wahler Associates	JASCO CHEMICAL CORP SHALLOW SOIL GAS INVESTIGATION	Interpolated 380 Concentration Lines for TCA (in PPb)		
		PROJECT NO.	DATE	FIGURE NO.
		JCO-101H	JAN. 1987	5

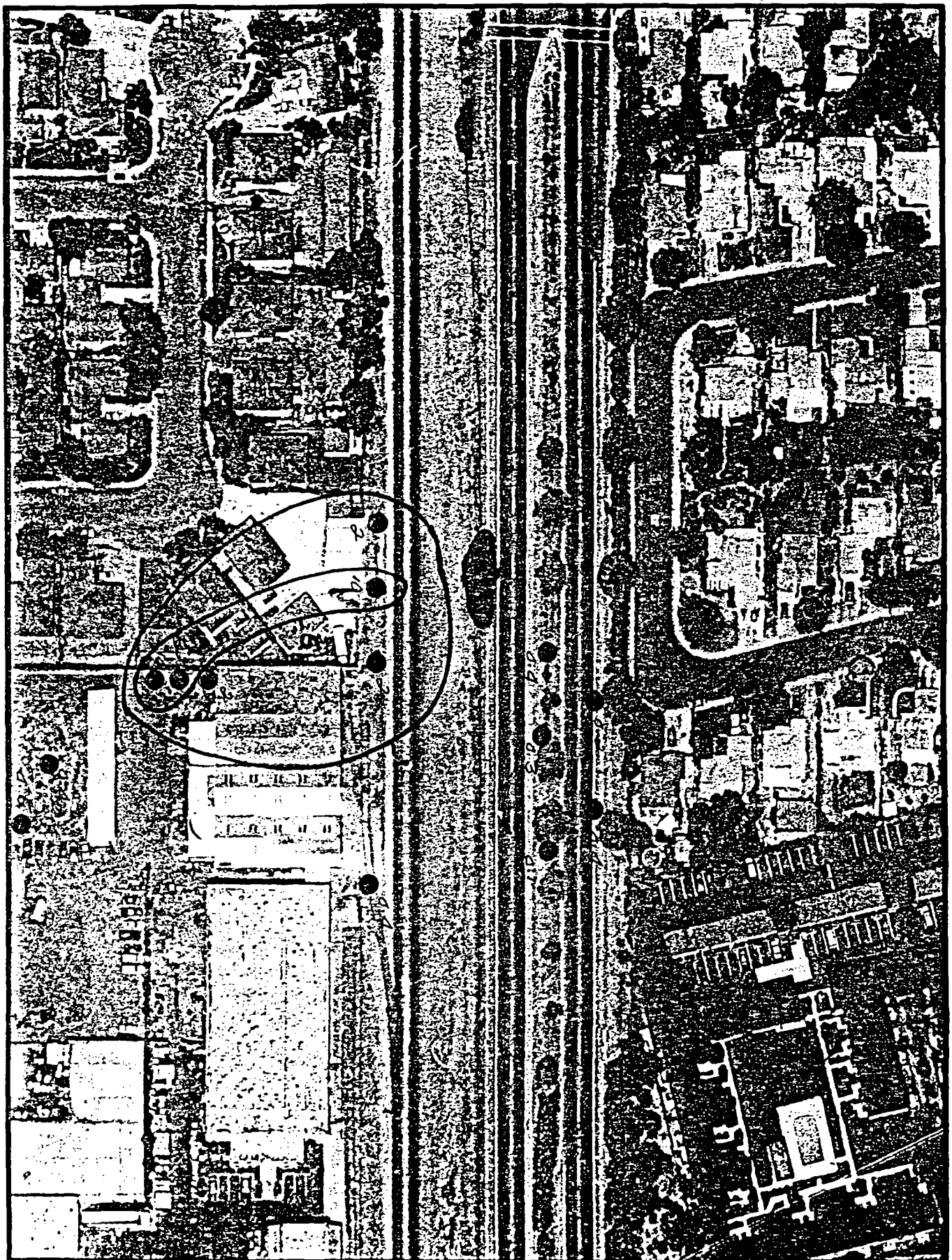


Wahler Associates

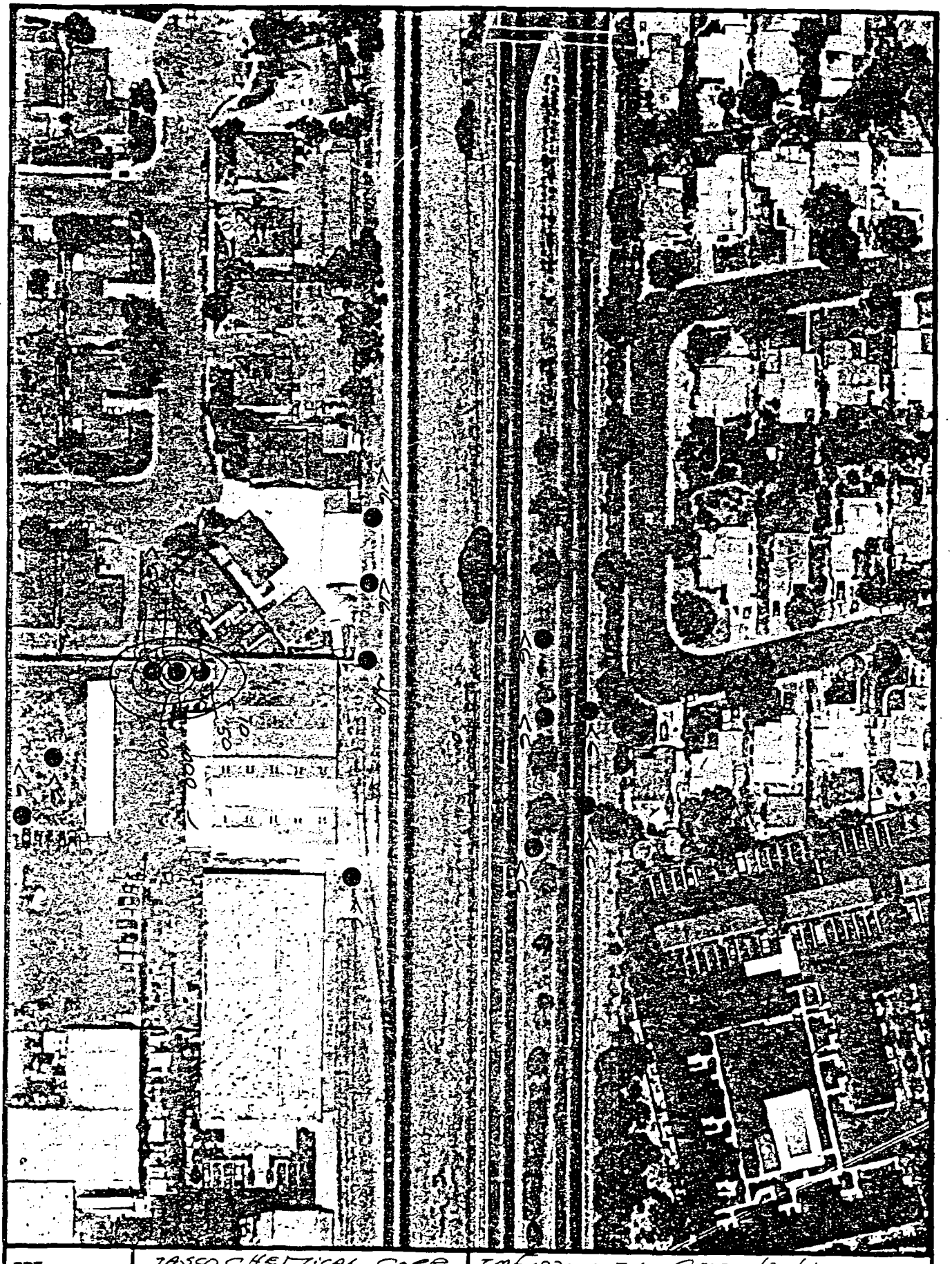
JASCO CHEMICAL CORP.
SHALLOW SOIL GAS
INVESTIGATION

Inferred Iso Concentration
Lines for TCE (in PPB)

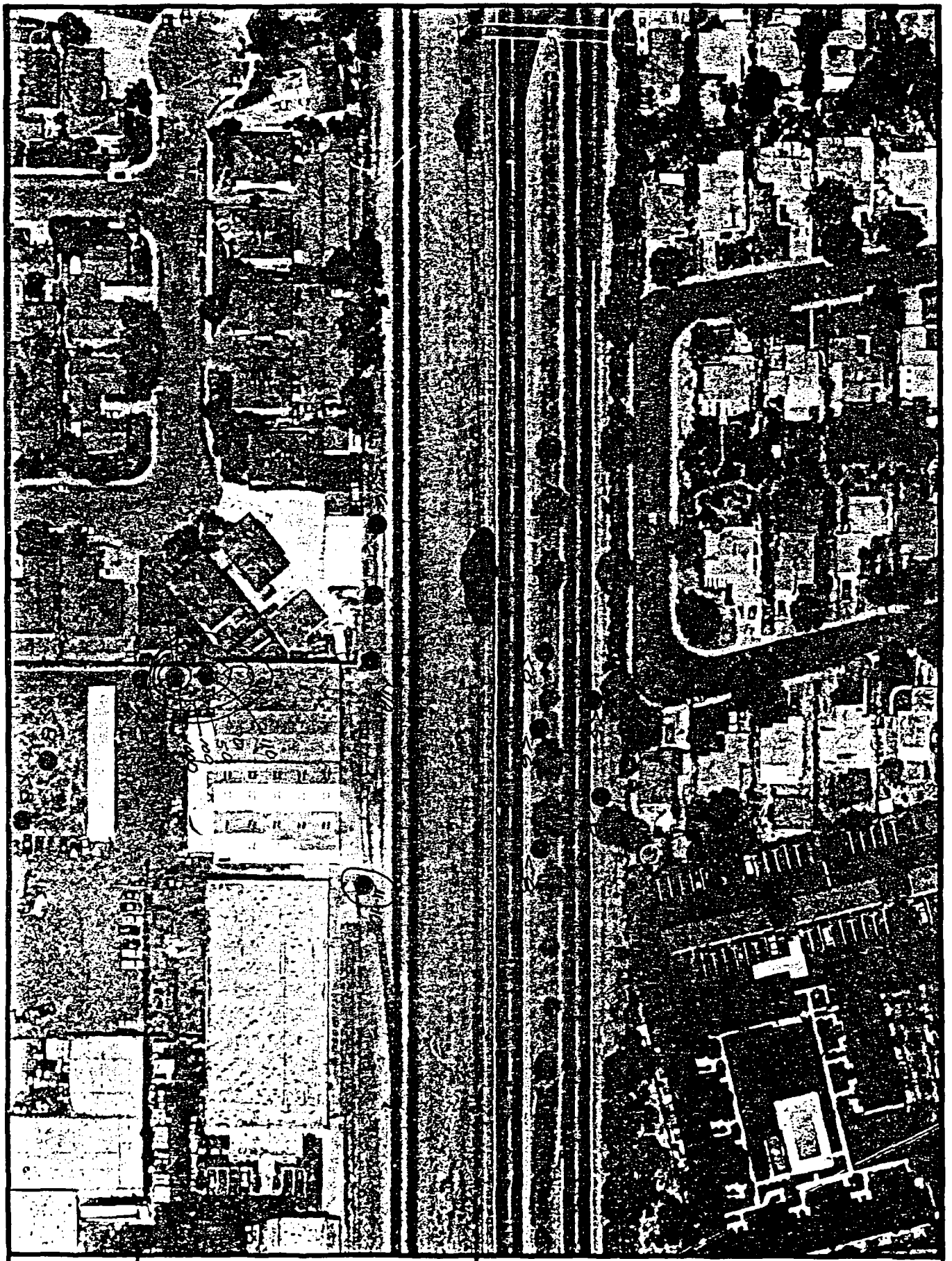
PROJECT NO.	DATE	FIGURE NO
JCO-101H	JAN. 1987	6



Wahler Associates	JASCO CHEMICAL CORP. SHALLOW SOIL GAS INVESTIGATION	Inferred Iso Concentration Lines for PCE (in PPB)		
		PROJECT NO.	DATE	FIGURE NO
		JCO- 101H	JAN. 1987	7



Wahler Associates	JASCO CHEMICAL CORP. SHALLOW SOIL GAS INVESTIGATION	Interpolated Iso Concentration Lines for Benzene (in PPB)		
		PROJECT NO.	DATE	FIGURE NO
		JCO-101H	JAN. 1987	8

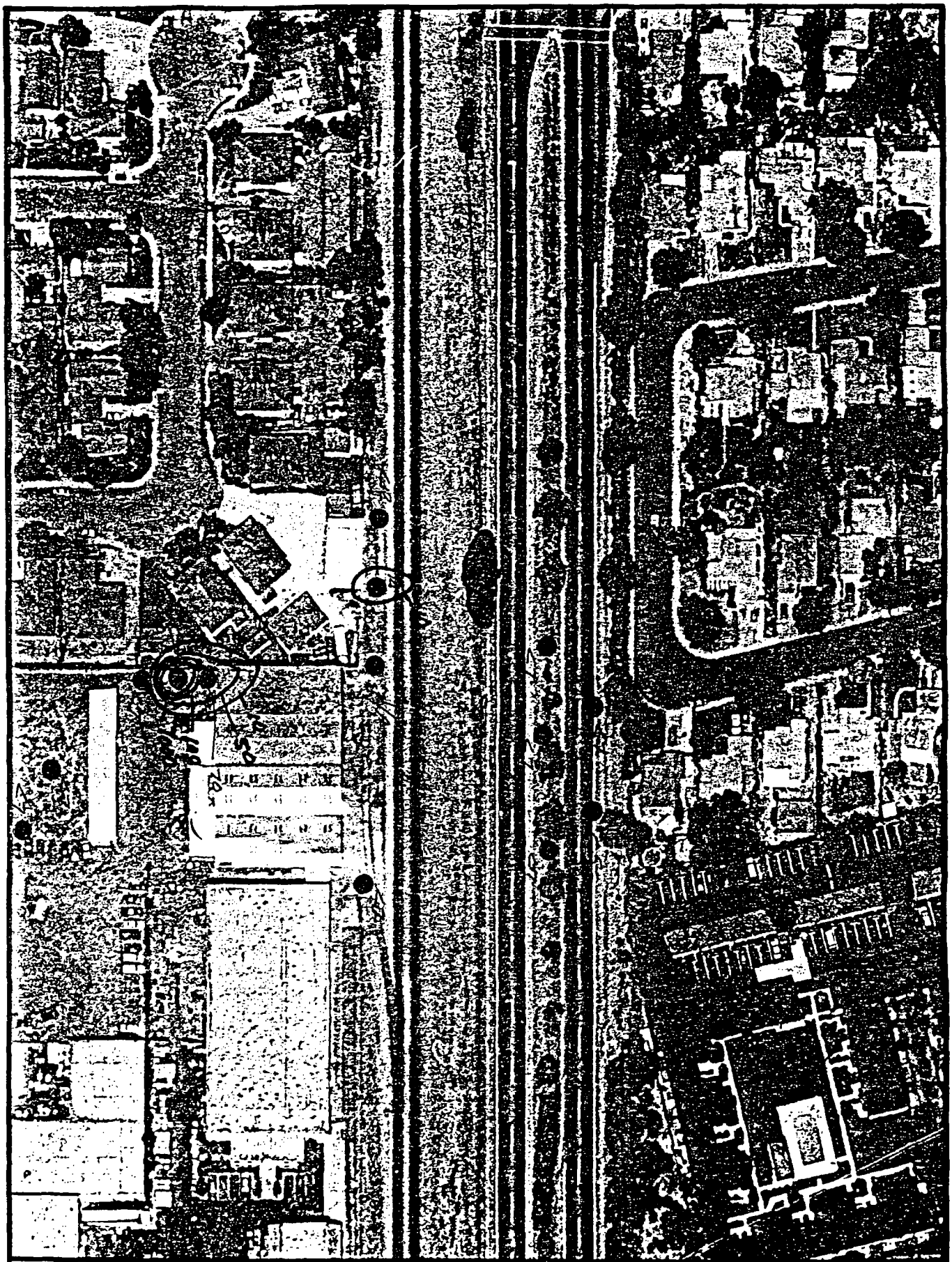


Wahler Associates

JASCO CHEMICAL CORP.
SHALLOW SOIL GAS
INVESTIGATION

Inferred 240 Concentration
Lines for Toluene (in PPb)

PROJECT NO.	DATE	FIGURE NO.
JCO - 101H	JAN. 1987	9

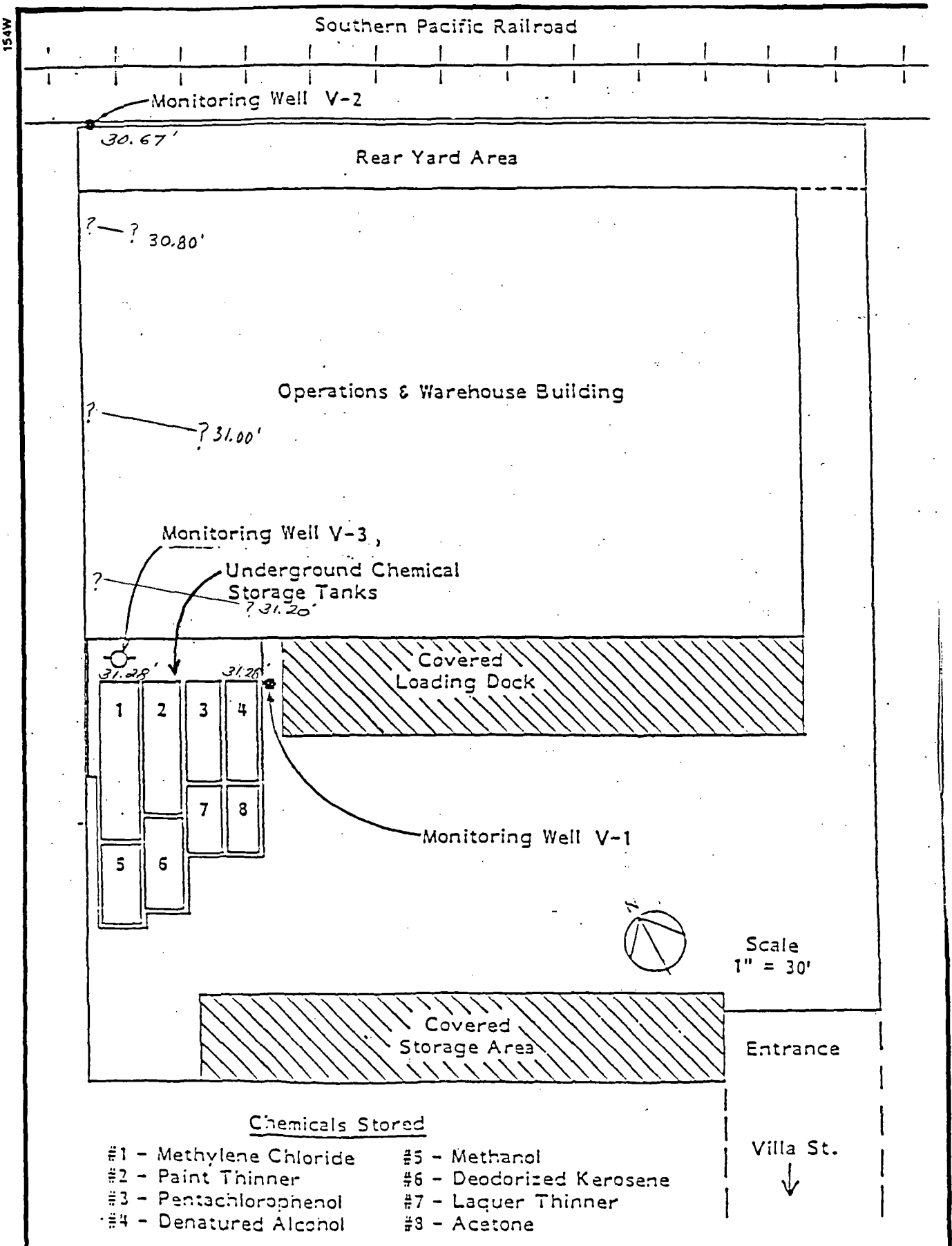


Wahler Associates

JASCO CHEMICAL CORP.
SHALLOW SOIL GAS
INVESTIGATION

Inferred Iso Concentration Lines for Xylene (in PPB)

PROJECT NO.	DATE	FIGURE NO.
JCO-101H	JAN. 1987	10



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JASCO CHEMICAL CORP.
SHALLOW SOIL GAS INVESTIGATION

POTENTIOMETRIC SURFACE (FEET) A. AQUIFER JAN. 1987

PROJECT NO.	DATE	FIGURE NO.
JCO-101H	JAN. 1987	11

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APPENDIX C

PHASE I HYDROGEOLOGIC INVESTIGATION

Jasco Chemical Corporation

Mountain View, California

Prepared for:

BRONSON, BRONSON, and McKINNON

June 1987

WAHLER ASSOCIATES

Geotechnical Engineers, Geologists and Hydrogeologists
1023 Corporation Way
Palo Alto, California 94303
Telephone (415) 968-6250

Project JCO-104H

Wahler Associates

Geotechnical and Water Resources Engineering

June 5, 1987
Project JCO-104H

Mr. James L. Jaffe
Bronson, Bronson, and McKinnon
Bank of America Center
San Francisco, CA 94104

Dear James,

Enclosed is our report describing the results of the Phase I Hydrogeologic Investigation conducted at and in the vicinity of Jasco Chemical Corporation in Mountain View, CA. Please do not hesitate to call if you have any questions regarding this report.

Sincerely,

WAHLER ASSOCIATES

Robert G. Breynaert
Project Manager

F. Homauounfar
Department Head,
Environmental Group

RGB:FH:ll

1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303 • Telephone Number (415) 968-6250
Telex Number 4998623

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JASCO CHEMICAL CORPORATION
MOUNTAIN VIEW, CALIFORNIA

A. INTRODUCTION

1. Purpose

This Phase I hydrogeologic investigation was conducted in response to a letter dated January 26, 1987 from Mr. Steve Morse, Division Chief, South Bay Division, of the California Regional Water Quality Control Board (CRWQCB) submitted to Mr. Dan Thomas, General Manager of Jasco Chemical Corporation. The objectives of this investigation were: (1) to determine the lateral extent of chemical concentrations within A-Aquifer in the vicinity of the Jasco site; (2) to determine the presence or absence of chemicals in the intermediate or B_1-Aquifer, and (3) to develop an understanding of the subsurface stratigraphy and hydrogeologic conditions within the study area. This report presents the stratigraphic information, maps of the A-Aquifer potentiometric surface, chemical analysis results, and the hydrogeologic interpretations of these data.

This report is organized into four sections: (A) An introductory section, (B) well construction, development and sampling procedures, (C) presentation of the results and interpretation of the site hydrogeology, and (D) a conclusions section.

2. Background Information

Jasco Chemical Corporation is located at 1710 Villa Street in Mountain View, CA (Figure 1). The 1.97-acre Jasco facility is bordered on the north by the Southern Pacific Railroad, main line right-of-way (Figure 2). To the east of the facility is Villa Mariposa, an apartment complex. Single and multi-family dwellings located along Higdon Avenue border the Jasco site to the west. Villa Street is located south of the Jasco site.

A preliminary investigation was performed at the Jasco facility by Questa Engineering from May of 1984 through December of 1986. Three A-Aquifer monitoring wells, V-1, V-2, and V-3, were installed during that phase of the investigation.

Wahler Associates was retained by Jasco in December of 1986 to continue the preliminary investigation at the Mountain View facility. On December 19, 1986, a shallow soil gas investigation was performed at the Jasco facility and surrounding area. For a complete discussion of the sampling strategy, sampling procedures, and results, consult the draft report prepared by Wahler Associates dated January 19, 1987.

In response to a letter submitted to Mr. Dan Thomas, General Manager of Jasco from Mr. Steve Morse, Division Chief, South Bay Division, CRWQCB, a Phase I hydrogeologic investigation work plan was submitted to the RWQCB on March 4, 1987. After agreement was reached by members of the CRWQCB staff and the Jasco project team as to the scope of work to be performed, the Phase I program was begun on April 27, 1987.

3. Scope of Work Performed

As part of the Phase I program, three A-Aquifer monitoring wells, V-5, V-6, and V-7, and one B_1-Aquifer monitoring well, I-1, were installed between April 27, 1987 and May 11, 1987. After installation and development, water-level measurements were taken from both the newly installed and previously existing wells on May 5, 1987 and May 22, 1987. The water level measurements (Table 2) were used to determine the ground water gradient and direction of ground water flow. Ground water samples were obtained from monitoring wells V-5, V-6, and V-7 on May 6, 1987 and from I-1 on May 15, 1987. Chemical testing was performed on the ground water samples. The testing program was designed to include those chemicals that are at present, or were in the past, stored at the Jasco facility (Table 3). The testing program included EPA Method 624 (purgeables) plus testing for methyl ethyl ketone (MEK) and xylenes (included within EPA Method 624 are toluene,

1,1,1-trichloroethane (1,1,1-TCA), and methylene choride (MCL)), EPA Method 604 (phenols) which includes pentachlorophenol, total hydrocarbons as kerosene, total hydrocarbons as lacquer thinner, total hydrocarbons as paint thinner, and a scan for acetone, methanol, and ethanol (Table 3). A more detailed discussion of the well installation, development, and sampling procedures, along with the chemical analysis results will be presented below.

In a January 26, 1987 letter, Mr. Steve Morse of the CRWQCB recommended to Mr. Dan Thomas of Jasco, that the possibility of ground water extraction with discharge to the sanitary sewer be pursued immediately, in order to expedite ground water cleanup. Pursuant to this recommendation, Jasco initiated the removal of ground water from monitoring well V-2 for the purpose of determining the viability of using V-2 in a future ground water extraction/remediation program. Initial pumping of V-2 revealed that sufficient amounts of ground water could not be removed from the 2-inch diameter monitoring well. As an attempt to obtain a higher rate of ground water removal, a 4-inch diameter A-Aquifer well, V-4, was installed eight feet west of V-2 on April 2, 1987 (Figure 2). All of the ground water removed during the testing of wells V-2 and V-4 was discharged to the City of Mountain View sanitary sewer in accordance with a series of permits issued to Jasco by the City of Mountain View Water Department on February 17, 1987, March 5, 1987, March 31, 1987, and May 21, 1987. Before and during the period of ground water removal, chemical testing for purgeable halocarbons using EPA Method 601 was performed on ground water samples from wells V-2 and V-4 (Tables 3 and 4). The purpose of the chemical testing was to document the reduction in chemical concentrations induced by the ground water removal (Table 4).

B. WELL CONSTRUCTION, DEVELOPMENT AND SAMPLING PROGRAM

1. Well Construction Methods

a. Monitoring Well V-4 - The installation of monitoring well V-4 was performed using a truck-mounted CME-75 drill rig equipped with a 10-inch

O.D., hollow-stem auger. Soil samples were taken at two feet, five feet and at five intervals thereafter down to 40 feet, using a California Modified Sampler equipped with 2.0-inch inside diameter stainless-steel liners or a standard penetration test, split-spoon sampler. The stainless steel liners were handled according to the Drilling, Sealing, Sampling, and Safety Protocol presented in Appendix E. A 140-pound hammer falling 30 inches was used to drive the sampler. Soil samples were inspected in the field to determine the stratigraphy. The soil boring was logged by a Wahler Associates' geologist, under the supervision of a certified engineering geologist.

The depth intervals at which the samples were taken and the stratigraphy encountered during drilling are summarized in the boring log for well V-4 located in Appendix A. Soil Samples S-4, S-5, and S-9 were sent to Sequoia Laboratories in Redwood City, CA, and analyzed for halogenated volatile organics according to EPA Method 8010. The soil samples were analyzed for volatile organics to determine if chemicals are present in the soil column either above or beneath the A-Aquifer. Soil sample S-4 was taken from a sandy gravel layer, henceforth referred to as the vadose high permeability zone, at a depth of 14.0 to 15.5 feet; soil sample S-5 was taken at a depth of 20.0 to 21.5 feet, from the sandy clay layer directly underlying the vadose high permeability zone; soil sample S-9 was taken from the clay layer directly underlying the A-Aquifer at a depth of 38.5 to 40.0 feet.

A bentonite seal was placed from the bottom of the boring, at 40.0 feet up to the base of the A-Aquifer, located at 35.0 feet. Monitoring well V-4 was completed using 4-inch, schedule 40, flush-threaded, PVC casing with 0.010-inch factory-made slots. A No. 3 sand pack was tremied into position around the slotted portion of the casing. A 2-foot bentonite seal was placed above the sand pack. After the bentonite pellets had enough time to form a reliable seal, a sanitary seal consisting of cement grout and 5 percent powdered bentonite was tremied into place under the supervision of a Santa Clara Valley Water District (SCVWD) inspector. While the cement was still moist, an above-ground, steel, locking well cover was installed over

the PVC well casing. Table 1 contains the well construction information for well V-4.

b. Monitoring Wells V-5, V-6, and V-7 - The installation of monitoring wells V-5, V-6, and V-7 was also performed, using a CME-75 drill rig. Soil samples were obtained using a 5-foot long, 2.5-inch diameter continuous sampler. Continuous sampling was performed in lieu of drive sampling because continuous sampling allows a complete section of sediment to be recovered from each of the borings permitting accurate identification of high and low permeability zones. Before drilling each 5-foot section, the continuous sampler was inserted into the hollow stem so that the core cutter at the base of the sampler was flush with the base of the auger. As the auger turned into the soil, the continuous sampler remained stationary within the hollow stem. This allowed an undisturbed, continuous, five-foot section of soil to be recovered with each section of hollow stem auger that was advanced down-hole. In advance of lowering the continuous sampler down-hole, two, 2.5-inch diameter, 2.5-foot-long plastic core liners were placed inside the sampler. After a 5-foot interval was drilled, the sampler was recovered from the hollow stem, and the core liners removed. The sediments were then removed from the core liners for hands-on examination to facilitate logging the soils and to determine the stratigraphy. After field logging, the soil samples were carefully put back into the core liners, sealed, and placed in storage at Wahler Associates' Palo Alto offices. The soil borings were logged in the field by a Wahler Associates' geologist, under the supervision of a certified engineering geologist. The stratigraphy encountered during drilling is summarized in the boring logs located in Appendix A. A-Aquifer monitoring wells V-5, V-6, and V-7, were completed, using 2-inch, schedule 40, flush-threaded, PVC casing with 0.010-inch factory-made slots. The wells were sand packed, sealed, and completed in the same manner as well V-4, described above. Table 1 contains the well construction information for wells V-5, V-6, and V-7.

c. Monitoring Well I-1 - The objective in installing monitoring well I-1 was to determine the presence or absence of chemicals in the ground water of the next deeper aquifer at the site, the B_1-Aquifer. To ensure that the

installation of well I-1 did not result in the interconnection of the A- and B_1-Aquifers, well I-1 was installed in three steps: (1) a pilot boring was drilled using a CME-75 drill rig; the pilot boring was terminated in the clay underlying the A-Aquifer at a depth of 41.0 feet; (2) the pilot boring was redrilled to 41.0 feet using a mud rotary drill rig; a 10-inch steel conductor casing was installed in the pilot boring, then driven with a 300-pound hammer 5.0 feet into the underlying clay or to 46.0 feet; the casing was grouted in-place by pumping cement grout containing 5 percent bentonite into the annulus through a tremie pipe; the grouting was done under the supervision of a SCVWD inspector; (3) after allowing the grout sufficient time to set, the boring was re-entered by the CME-75 drill rig, and a secondary boring drilled to 5 feet below the next deeper, or B_1-Aquifer. Monitoring well I-1 was then completed using a 2-inch, schedule 40, flush-threaded, PVC casing with 0.010-inch factory-made slots. The well was sand packed, sealed, and completed in the same manner as the A-Aquifer monitoring wells. Table 1 contains the well construction information for B_1-Aquifer well I-1.

2. Well Development Method

After installation, each well was developed with pressurized nitrogen. Steam-cleaned PVC tubing was lowered to the bottom of each well and secured at the surface with duct tape. Pressurized dry nitrogen was then injected through the tubing at 50-100 psi displacing the standing water in each well. The process was repeated several times until the ground water was free of fine sand and other sediment.

3. Sampling Program

Before ground water samples for chemical analysis were obtained, 3.3 to 4.8 bore volumes of ground water were removed from each well using a steam-cleaned Teflon bailer. Ground water was removed from each well prior to sampling to ensure that the samples used for chemical analysis were freshly drawn formational ground water, not ground water that had been sitting in the well casing.

Following the bailing procedure, ground water samples were taken from each well using a steam-cleaned bailer. A separate bailer was used for each well to remove the possibility of cross-contamination. After removal, each sample was promptly placed on ice and delivered to a State of California Certified Laboratory for chemical analysis. The testing program for wells V-5, V-6, V-7 and I-1, is summarized in Table 3 and included EPA Method 624, which includes 1,1,1-TCA, and methylene chloride, a separate scan for MEK and xylenes, total hydrocarbons as kerosene, total hydrocarbons as lacquer thinner, total hydrocarbons as paint thinner, and an alcohols/acetone scan which included methanol, ethanol and acetone. Travel blanks were submitted to the laboratory along with the ground water samples from wells V-5, V-6, and V-7. The travel blanks were analyzed according to EPA Method 624 and total hydrocarbons as kerosene to confirm that outside contamination did not affect the samples or sampling equipment prior to, during, or after the sampling procedure.

Ground water samples were obtained periodically from monitoring wells V-2 and V-4 during the well development program. The samples were tested for purgeable halocarbons using EPA Method 601 (Table 3). Lastly, ground water samples from well V-3 were tested for purgeables using EPA Method 624, for base/neutrals, acids and pesticides using EPA Method 625, and total hydrocarbons as benzene, toluene, and xylenes (Table 3).

A summary of the chemical analyses performed is presented in Table 3. The results of the chemical analyses are summarized in Table 4 and presented in Appendix B.

4. Ground Water Elevation Measurements

Monthly ground water elevation measurements have been taken at Jasco beginning in December of 1986. The results are presented in Table 2. Potentiometric surface maps for the A-Aquifer have been constructed, using the February 20, 1987, May 5, 1987 and, May 22, 1987 ground water elevation measurements (Figures 6, 7, and 8).

C. RESULTS

1. Stratigraphic Interpretation

The boring logs from the seven A-Aquifer and one B_1-Aquifer monitoring wells have been used to construct three geologic cross-sections through the study area. Figure 2 shows the configuration of the cross-sections: cross-sections A-A' and C-C' are oriented roughly perpendicular to the pre-pumping direction of ground water flow. Cross-section B-B' is oriented roughly parallel to the pre-pumping direction of ground water flow.

The stratigraphy of the study area may be divided into three relatively permeable zones, the vadose high permeability zone, the A-Aquifer, and the B_1-Aquifer, separated by zones of low permeability. The vadose high permeability zone ranges in thickness from a few inches, in the case of V-7, to 14.9 feet, as observed in V-5. Underlying this first zone of high permeability is a 10 to 16-foot thick clay layer which separates the vadose high permeability zone from the A-Aquifer.

The A-Aquifer, ranging in thickness from 0.5 to 13.5 feet, is found ubiquitously across the study area (Figures 3, 4 and 5). The A-Aquifer appears to be a good water-yielding zone based on well development and ground water sampling.

The top of the A-B_1 Aquitard, underlying the A-Aquifer, was penetrated in all of the soil borings. The thickness of the A-B_1 Aquitard ranges from 4.6 to 19.5 feet. The full thickness of the A-B_1 Aquitard was penetrated in well V-1, constructed by Questa Engineering, and wells V-6 and I-1, installed as part of this investigation. Soil boring V-6 was advanced only two inches into the clayey sand layer underlying the A-B_1 Aquitard. The boring was promptly backfilled with bentonite pellets up to the A-Aquifer/A-B_1 Aquitard contact. Well I-1 was screened in the B_1-Aquifer which underlies the A-B_1 Aquitard and was cased and sealed through the A-Aquifer.

The B_1-Aquifer was encountered in soil borings V-1, V-6 and I-1. The full thickness of the B_1-Aquifer was penetrated only in I-1, where the thickness was 11.2 feet. The B_1-Aquifer appears to be a good water yielding zone based on well development and ground water sampling.

Both the A and B_1 aquifers appear to be confined to semi-confined in nature. This is based on the depth that ground water was first encountered being greater than the static water levels after completion of the soil borings.

2. Ground Water Elevations

Six episodes of A-Aquifer ground water elevation measurements were made as part of this Phase I investigation. Three A-Aquifer potentiometric surface maps have been constructed using the water elevation data (Figures 6, 7 and 8). Figure 6 displays the pre-pumping A-Aquifer potentiometric surface on February 20, 1987. The direction of ground water flow is to the north-northeast and the ground water gradient is 0.002.

The May 5, 1987 water elevation measurements were taken after removal of ground water from wells V-2 and V-4 had been stopped for nine days to allow the A-Aquifer time to re-equilibrate. Examination of Figure 7 reveals that the A-Aquifer potentiometric surface is distorted due to the removal of ground water even after the nine day re-equilibration period. The direction of ground water flow in the vicinity of wells V-1 and V-3 is to the north-northeast, as it was before the initiation of ground water removal. To the northwest of wells V-2 and V-4, in the vicinity of well V-6, the direction of ground water flow is to the east. This may be interpreted as the ground water in the A-Aquifer re-establishing its north-northeast flow direction after the cessation of ground water removal. The ground water gradient ranges from 0.005 in the vicinity of wells V-1, V-2, V-3 and V-4 to 0.010 in the vicinity of wells V-6 and V-7. Ground water removal from well V-4 was resumed one hour after the ground water elevation measurements were taken on May 5, 1987 (Table 2, Figure 7).

The final set of A-Aquifer ground water elevations were taken on May 22, 1987. The measurements were taken while ground water was being removed from well V-4. The A-Aquifer potentiometric surface reflects the effects of the ground water removal (Figure 7). The ground water elevation at well V-4 has been depressed 12.6 feet by the removal process. Well V-2, located just eight feet from V-4, experienced a ground water elevation depression of just 1.71 feet. The difference in ground water elevation depression between V-2 and V-4 suggests that a cone of depression has been formed in the vicinity of well V-4. The lateral extent of the cone of depression may be quantified by performing pumping tests in well V-4. All of the A-Aquifer monitoring wells experienced a depression in ground water elevation on May 22, 1987 relative to the data collected on May 5, 1987. This suggests that the cone of depression (Zone of ground water capture) of V-4 may intersect each of the A-Aquifer monitoring wells. The continued removal of ground water from well V-4 is likely to further reduce the concentration of chemicals within the zone of capture. The ground water gradient on May 22, 1987, in a south to north direction from V-3 to the vicinity of V-4, was 0.016. In a north-northwest to south-southeast direction from well V-5 to the vicinity of well V-4, the ground water gradient was 0.008.

Two episodes of ground water elevation measurements were performed on B_1-Aquifer well I-1. The data are presented in Table 2. The May 5, 1987 measurement was taken after ground water removal from A-Aquifer well V-4 had been stopped for nine days. The ground water elevation at I-1, 34.67, was at a slightly lower elevation, than that of V-4, 34.72. This suggests that a slightly downward vertical hydraulic gradient may exist in the vicinity of wells V-4 and I-1. However, before a reliable estimate of the vertical hydraulic gradient can be made, additional ground water elevation measurements are needed.

The second water elevation measurement at well I-1 was taken on May 22, 1987, during which time ground water was being removed from well V-4. A 0.98-foot decrease in ground water elevation relative to the May 5, 1987 observation was observed at I-1. A greater number of ground water elevation

observations are required from both well I-1 and the A-Aquifer wells in the vicinity of I-1 before a reliable determination of vertical hydraulic gradient between the A and B_1-Aquifer in the vicinity of the Jasco site can be made.

3. Chemical Analysis Results

The results of the chemical analyses performed as part of this Phase I program are summarized in Table 4 and presented in Appendix B and Figures 9 and 10. Examination of Table 4 reveals that since ground water removal from wells V-2 and V-4 began on February 20, 1987, a dramatic drop has occurred in chemical concentrations at the Jasco facility. The most substantial decrease in concentration has occurred in methylene chloride (MCL) which on February 20, 1987, was observed at a concentration of 86,000 ppb (in V-2). The MCL concentration has since dropped to 700 ppb in the latest analysis performed on a sample taken May 5, 1987. The May 5, 1987 sample was obtained using a steam-cleaned bailer nine days after ground water removal from well V-4 had ended. In addition to MCL, significant decreases in the concentrations of all of the other volatile organic compounds found in well V-2 have been observed (Table 4). In fact, an 1,800 percent decrease in total volatile organic compounds in well V-2 has occurred since the first ground water sample was analyzed on February 20, 1987.

During the construction of well V-4, two soil samples were taken stratigraphically above the A-Aquifer and one from the A-B_1 Aquitard, 3.5 feet below the contact between the A-Aquifer and A-B_1 Aquitard. The three soil samples were analyzed for the halogenated volatile organics according to EPA Method 8010. Halogenated volatile organic chemicals were found in the two samples taken from above the A-Aquifer (Table 4). However, the sample taken from the A-B_1 Aquitard was free of halogenated volatile organics at a detection limit of 50 ppb (Table 4).

The chemical analysis results for wells V-3, V-4, V-5, V-6, and I-1, are summarized in Table 4, and presented in Figures 9 and 10, and Appendix B.

The only chemical detected in well V-3 was 1,2-dichloroethene (1,2-DCE), at a concentration of 4.0 ppb. No chemicals were detected in wells V-5 and V-6. The results from well V-6 indicate that chemicals have not migrated off-site, in a cross-gradient direction towards City of Mountain View Municipal Well 17. 1,1,1-TCA at a concentration of 64 ppb, 1,1-dichloroethane (1,1-DCA) at a concentration of 55 ppb, 1,1-DCE at 7.7 ppb and carbon tetrachloride at a concentration of 5 ppb were detected in well V-7. The only chemical detected in B_1-Aquifer well I-1 was 1,1-DCA at a concentration of 11 ppb. However, since this low concentration may be an artifact of laboratory error, well V-7 has been resampled and analyzed for purgeables according to EPA Method 624. The results will be forwarded to the CRWQCB when they are received.

Plans have been finalized to re-sample wells V-5, V-6, V-7, and I-1. Well V-7 will be resampled to confirm that, (1) chemicals have migrated in a down-gradient direction in the A-Aquifer and, (2) to monitor the effect that ground water removal at well V-4 will have in reducing chemical concentrations at V-7. The removal of ground water at well V-4 is likely to reduce chemical concentrations at well V-7 because well V-7 is located within the cone of depression created by ground water removal at well V-4 (Figure 8). Wells V-5 and V-6 will be re-sampled to confirm that chemicals in the A-Aquifer in the vicinity of the Jasco site have not migrated off-site in a cross-gradient direction. Of particular interest are the results from well V-6 which indicate that chemicals in the A-Aquifer have not migrated off-site in the direction of Mountain View Municipal Well 17.

D. CONCLUSIONS

1. Three distinct zones of higher permeability: a vadose zone of high permeability, the A-Aquifer, and the B_1-Aquifer exist in the upper 60 feet of section in the vicinity of the Jasco facility. The higher permeability zones are separated by low permeability units.

2. The pre-pumping direction of ground water flow at the Jasco facility is to the north-northeast and the ground water gradient is 0.002. The removal of ground water at the Jasco facility has caused the formation of a cone of depression in the potentiometric surface of the A-Aquifer. The cone of depression has induced both cross-gradient flow of ground water from the vicinities of wells V-5 and V-6 towards V-4, upgradient flow of ground water from the vicinity of well V-7 towards well V-4, as well as intensified down-gradient flow from wells V-1 and V-3 towards well V-4.

3. An 1,800 percent reduction in the concentration of volatile organic compounds has been observed in the A-Aquifer well V-2, as a result of ground water removal at well V-4.

4. Low concentrations of 1,1,1-TCA, 1,1-DCA, 1,1-DCE and carbon tetrachloride were found in well V-7, located 145 feet north of the Jasco site. Reduction in the concentrations of these chemicals at V-7, which may lie in the cone of depression created by ground water removal at well V-4, is likely to occur as a result of continued ground water removal at well V-4.

5. 1,1-DCA at a concentration of 11 ppb was found in B_1-Aquifer well I-1. Re-sampling of well I-1 has been performed.

6. Chemicals were not detected in off-site wells V-5 and V-6, located cross-gradient from the Jasco facility. The results from well V-6 indicate that chemicals in the A-Aquifer have not migrated off-site in a cross-gradient direction towards the City of Mountain View Municipal Well Number 17.

TABLE 1

WELL CONSTRUCTION INFORMATION (DEPTHS IN FEET)

Well Number	Depth of Boring	Screened Interval	Depth of Sand Pack
V-4	40.0	28.0-35.0	27.0-35.0
V-5	40.5	33.5-36.5	32.0-36.5
V-6	47.5	37.5-42.5	35.5-42.5
V-7	42.5	24.0-35.5	22.0-35.5
I-1	62.5	48.3-57.5	46.3-57.5

TABLE 2

GROUND WATER ELEVATIONS: A AND B_1 AQUIFER WELLS

Well Number	12-17-86	1-14-87	2-20-87	4-6-87	5-5-87	5-22-87
V-1	34.97	34.94	35.27	35.27	35.31	35.17
V-2	34.75	34.57	34.98	a	34.74	33.03
V-3	34.88	34.79	35.26	35.07	35.24	35.03
V-4	--	--	--	32.45	34.72	22.12
V-5	--	--	--	--	34.80	34.21
V-6	--	--	--	--	35.61	34.00
V-7	--	--	--	--	34.06	33.81
I-1*	--	--	--	--	34.67	33.69

* - B_1-Aquifer Well

a - Well was used for ground water extraction

-- Well not installed at time measurements were taken

TABLE 3

SUMMARY OF CHEMICAL ANALYSES PERFORMED

Well Number	Date	Type of Analysis	Matrix	Laboratory	Travel Blank
V-2	12-17-86	EPA-601	GW	S	EPA-601
V-2	2-20-87	EPA-601	GW	SEL	--
V-2	3-2-87	EPA-601	GW	S	EPA-601
V-2	3-19-87	EPA-601	GW	S	EPA-601
V-2	5-6-87	EPA-601	GW	S	
V-3	1-30-87	EPA-624a	GW	S	EPA-624
V-3	1-30-87	EPA-625	GW	S	--
V-3	1-30-87	THC as btx	GW	S	--
V-4:S-4	4-2-87	EPA-8010	So 14'-15.5'	S	--
V-4:S-5	4-2-87	EPA-8010	So 20'-21.5'	S	--
V-4:S-9	4-2-87	EPA-8010	So 38.5'-40'	S	--
V-4	4-3-87	EPA-601	GW	S	--
V-4	5-20-87	EPA-601	GW	S	--
V-5	5-6-87	EPA-624b	GW	A	EPA-624
V-5	5-6-87	EPA-604	GW	S	--
V-5	5-6-87	THC as kerosene	GW	S	THC as kerosene
V-5	5-6-87	THC as lacquer thinner	GW	S	--
V-5	5-6-87	THC as paint thinner	GW	S	--
V-5	5-6-87	c	GW	S	--
V-6	5-6-87	EPA-624b	GW	A	EPA-624
V-6	5-6-87	EPA-604	GW	S	--
V-6	5-6-87	THC as kerosene	GW	S	THC as kerosene
V-6	5-6-87	THC as lacquer thinner	GW	S	--
V-6	5-6-87	THC as paint thinner	GW	S	--
V-6	5-6-87	c	GW	S	--
V-7	5-6-87	EPA-624b	GW	A	EPA-624
V-7	5-6-87	EPA-604	GW	S	--
V-7	5-6-87	THC as kerosene	GW	S	THC as kerosene
V-7	5-6-87	THC as lacquer thinner	GW	S	--
V-7	5-6-87	THC as paint thinner	GW	S	--
V-7	5-6-87	c	GW	S	--
I-1	5-15-87	EPA-624b	GW	A	EPA-624
I-1	5-15-87	EPA-604	GW	S	--

TABLE 3 (Cont'd)

SUMMARY OF CHEMICAL ANALYSES PERFORMED

Well Number	Date	Type of Analysis	Matrix	Laboratory	Travel Blank
I-1	5-15-87	THC as kerosene	GW	S	THC as kerosene
I-1	5-15-87	THC as lacquer thinner	GW	S	--
I-1	5-15-87	THC as paint thinner	GW	S	--
I-1	5-15-87	c	GW	S	--

NOTES:

GW - Analysis performed on ground water sample
Ss - Analysis performed on soil sample
a - Open scan performed to determine the presence of acetone, MEK, methanol, ethanol, and xylenes.
THC - Total hydrocarbons
btx - Benzene, toluene and xylenes
b - Scan performed to determine the presence of MEK and xylenes
c - Scan performed to determine the presence of methanol, acetone, isopropanol, and ethanol
S - Sequoia Laboratories
SEL - Scientific Environmental Laboratories
A - Anatec

Wahler Associates

TABLE 4

SUMMARY OF CHEMICAL ANLAYSIS RESULTS (ppb)

Well Number/Date	Lab	Analysis	MCL	Chloroethane	1,1,1-TCA	1,1-DCA	TCE	1,1-DCE	Vinyl Chloride	Other
V-2										
12-17-87	S	601-GW	30,000	170	540	880	19	<5	<5	PCE 8.0
2-20-87	SEL	601-GW	86,000	<500	2,040	<500	<500	<500	<500	1,2-DCA 2,580
3-2-87	S	601-GW	1,600	80	610	1,200	< 5	110	<5	
3-19-87	S	601-GW	2,400	<50	510	900	<50	<20	<50	
5-5-87	S	601-GW	700	6	410	540	13	51	5.1	
V-3										
1-30-87	S	624-GW	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1,2-DCE 4.0
V-4										
4-2-87:S4 14'-15.5'	S	8010-So	880	<50	57	<50	<50	<50	<50	
4-2-87:S5 20'-21.5'	S	8010-So	3,500	<50	340	350	<50	<50	<50	
4-2-87:S9 38.5'-40'	S	8010-So	<50	<50	<50	<50	<50	<50	<50	
4-3-87	S	601-GW	1,400	160	1,300	2,200	<10	170	11	
5-20-87	S	601-GW	490	12	390	1,200	< 5	140	<5	
V-5										
5-5-87	A	624-GW	<2.8	<5	<3.8	<4.7	<1.9	<2.8	<5	

Wahler Associates

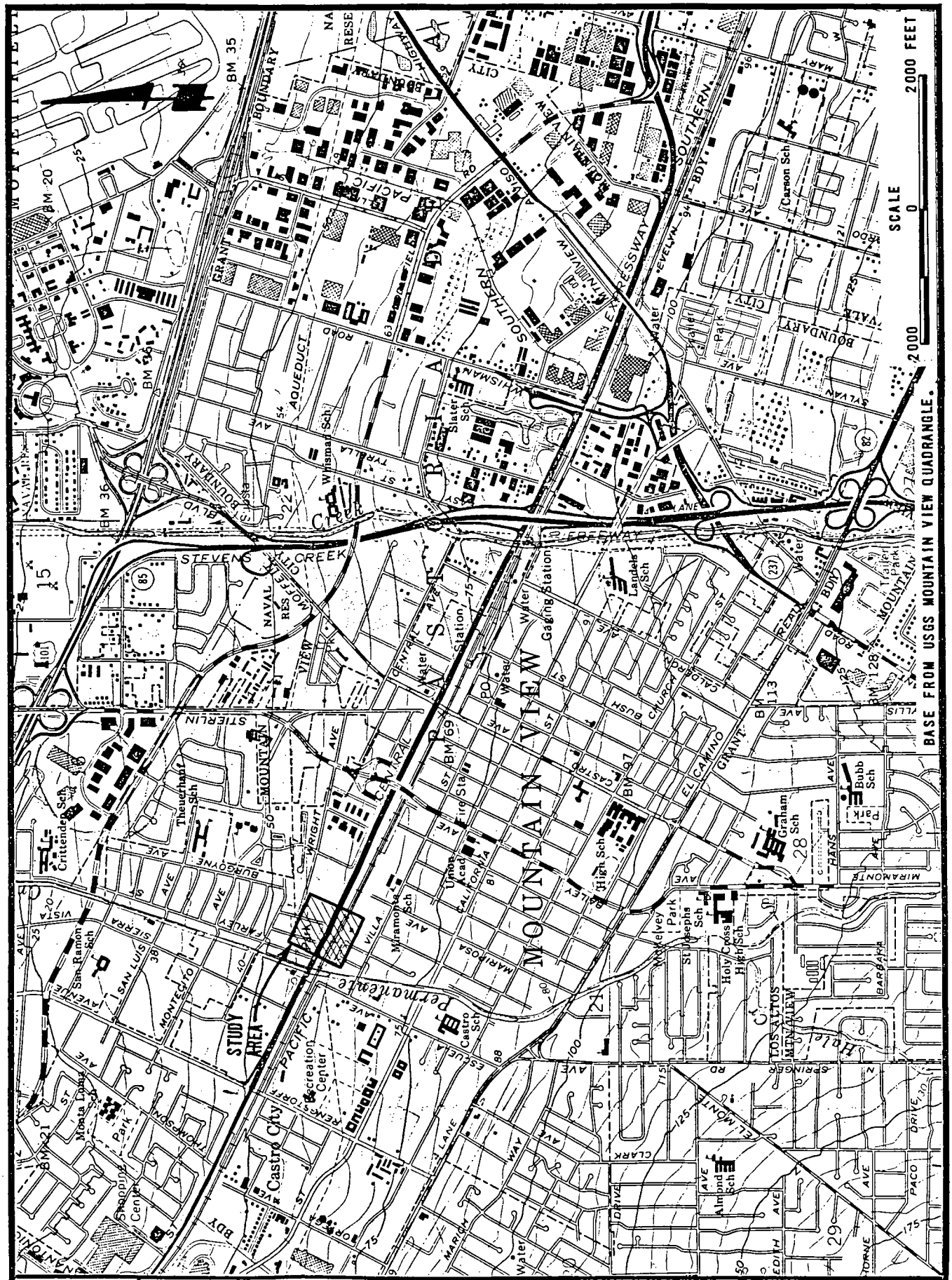
TABLE 4 (Cont'd)

SUMMARY OF CHEMICAL ANLAYSIS RESULTS (ppb)

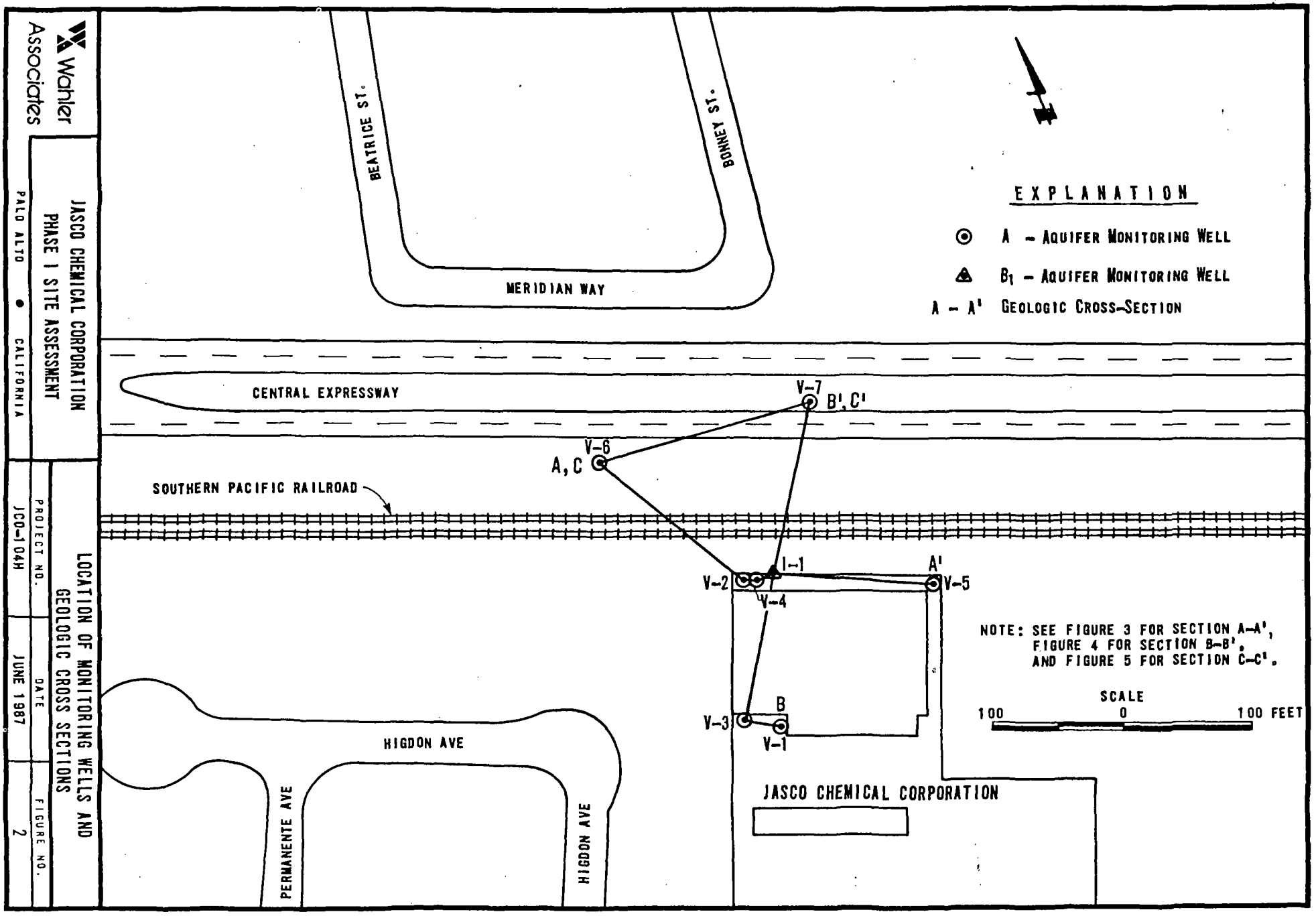
Well Number/Date	Lab	Analysis	MCL	Chloroethane	1,1,1-TCA	1,1-DCA	TCE	1,1-DCE	Vinyl Chloride	Other
V-6										
5-5-87	A	624-GW	<2.8	<5	<3.8	<4.7	<1.9	<2.8	<5	
V-7										
5-5-87	A	624-GW	<2.8	<5	64	55	<1.9	7.7	<5	Carb-tet. 5.0
I-1										
5-15-87	A	624-GW	<2.8	<5	<3.8	10.7	<1.9	<2.8	<5	

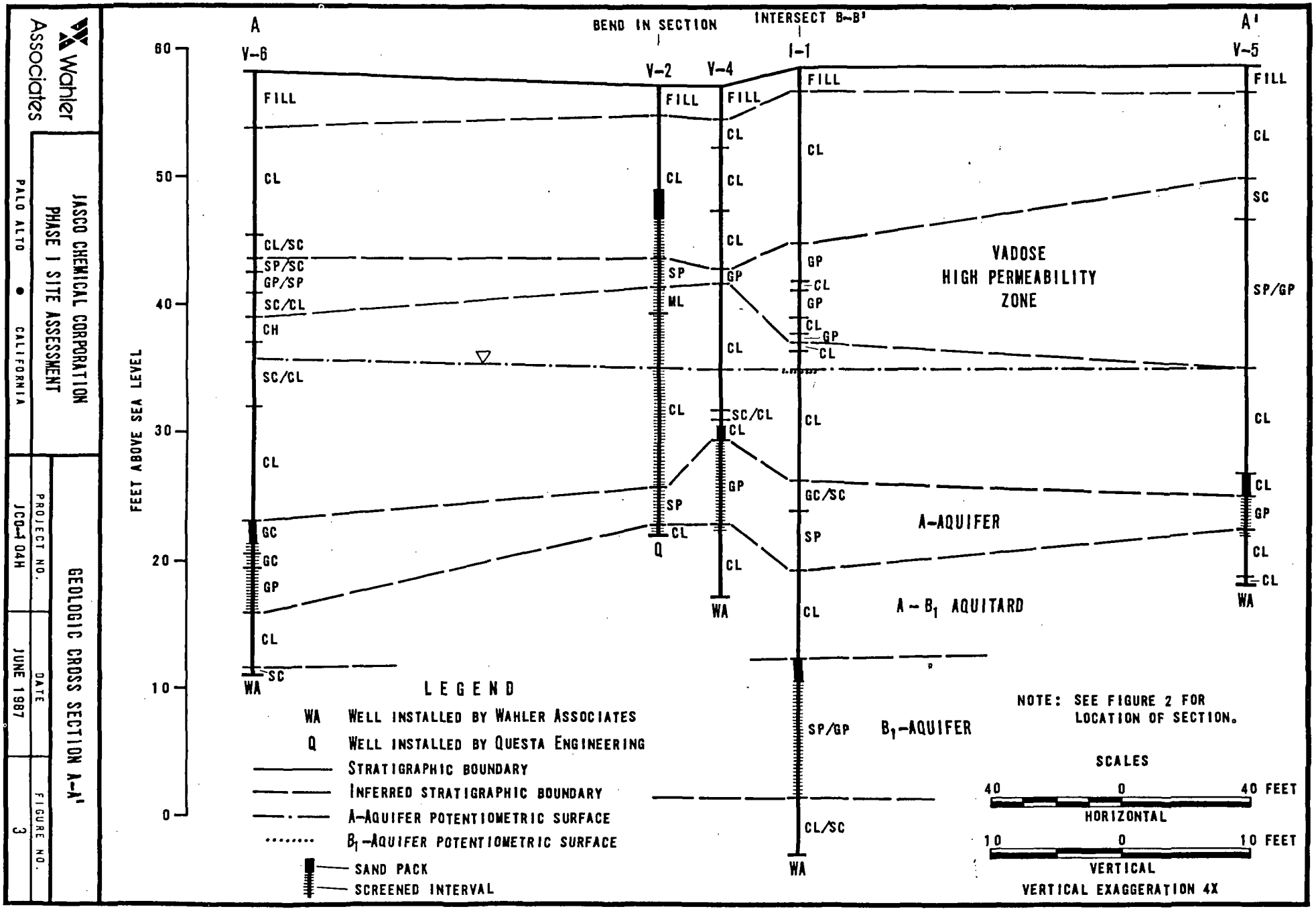
NOTES:

S - Sequoia Analytical Laboratory
SEL- Scientific Environmental Laboratories
A - Anatec
601 - EPA Method 601
624 - EPA Method 624
625 - EPA Method 625
8010- EPA Method 8010
GW - Analysis performed on ground water sample
So - Analysis performed on soil sample
Carb-Tet - Carbon tetrachloride



Wahler Associates	JASCO CHEMICAL CORPORATION PHASE I SITE ASSESSMENT PALO ALTO • CALIFORNIA	LOCATION OF STUDY AREA (AREA SHOWN IN FIGURE 2)		
		PROJECT NO.	DATE	FIGURE NO.
		JCO-104H	JUNE 1987	1


Wahler Associates
JASCO CHEMICAL CORPORATION
PHASE I SITE ASSESSMENT
PALO ALTO • CALIFORNIA
LOCATION OF MONITORING WELLS AND GEOLOGIC CROSS SECTIONS
PROJECT NO. JCO-104H
DATE JUNE 1987
FIGURE NO. 2
BEATRICE ST.
BONNEY ST.
MERIDIAN WAY
CENTRAL EXPRESSWAY
SOUTHERN PACIFIC RAILROAD
HIGDON AVE
PERMANENTE AVE
HIGDON AVE
JASCO CHEMICAL CORPORATION
EXPLANATION
A – AQUIFER MONITORING WELL
B1 – AQUIFER MONITORING WELL
A – A' GEOLOGIC CROSS-SECTION
V-7
B', C'
V-6
A, C
I-1
A'
V-2
V-5
V-4
B
V-3
V-1
NOTE: SEE FIGURE 3 FOR SECTION A–A',
FIGURE 4 FOR SECTION B–B',
AND FIGURE 5 FOR SECTION C–C'.
SCALE
100 0 100 FEET



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JASCO CHEMICAL CORPORATION
PHASE I SITE ASSESSMENT

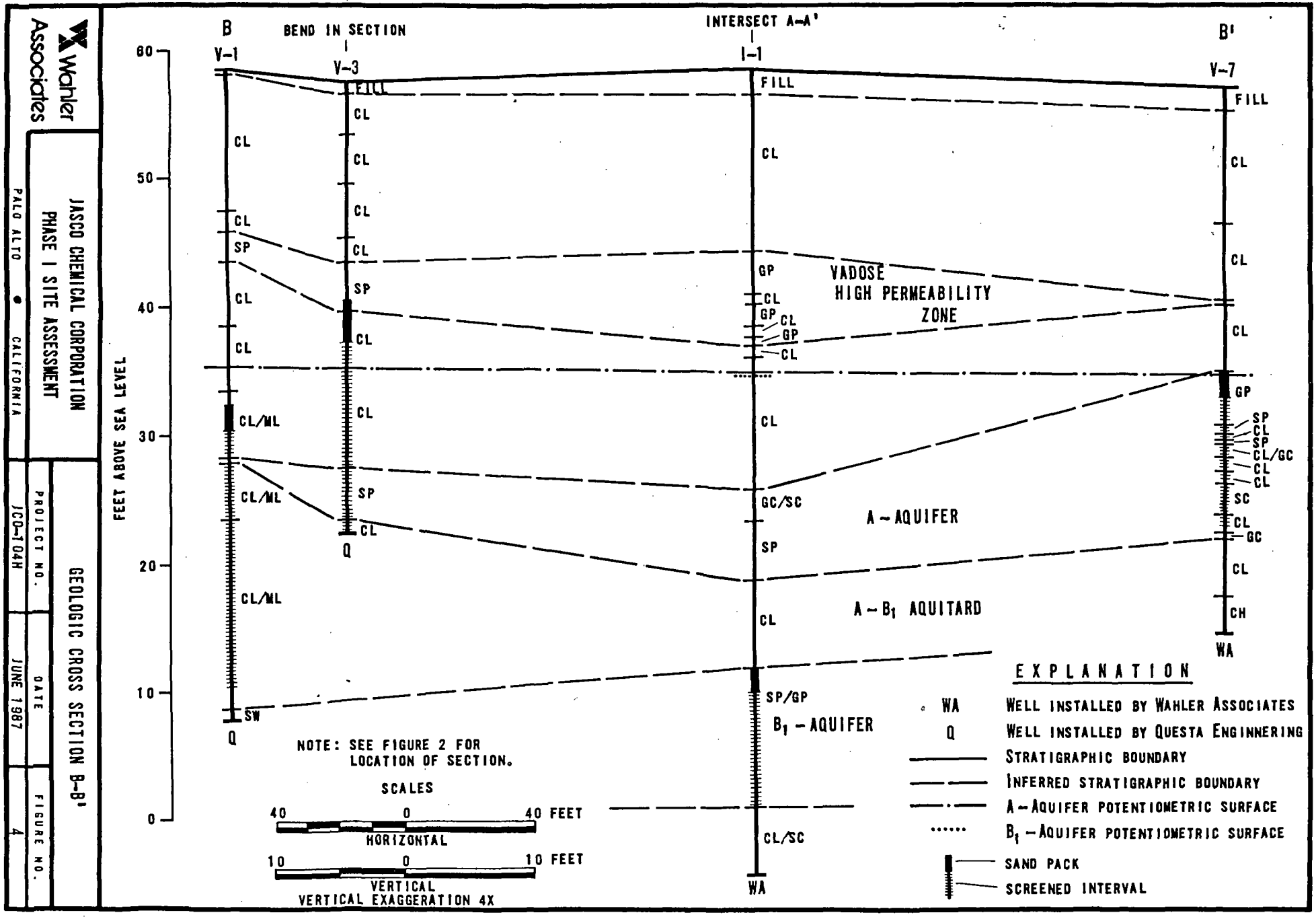
GEOLOGIC CROSS SECTION A-A'

PROJECT NO. JCO-1 04H

DATE JUNE 1987

FIGURE NO. 3

OZALID



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JASCO CHEMICAL CORPORATION
PHASE I SITE ASSESSMENT

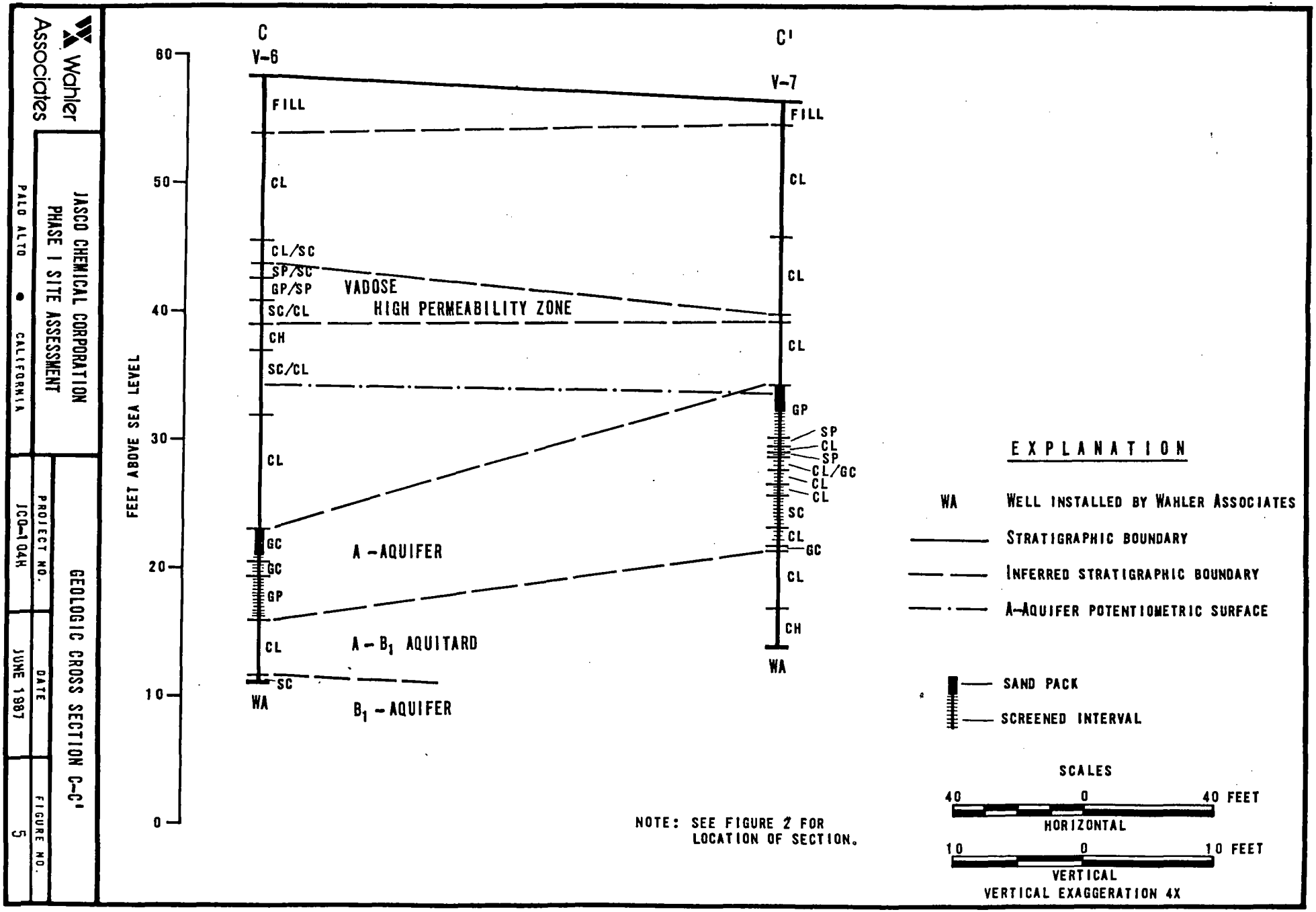
PALO ALTO • CALIFORNIA

PROJECT NO. JCD-104H

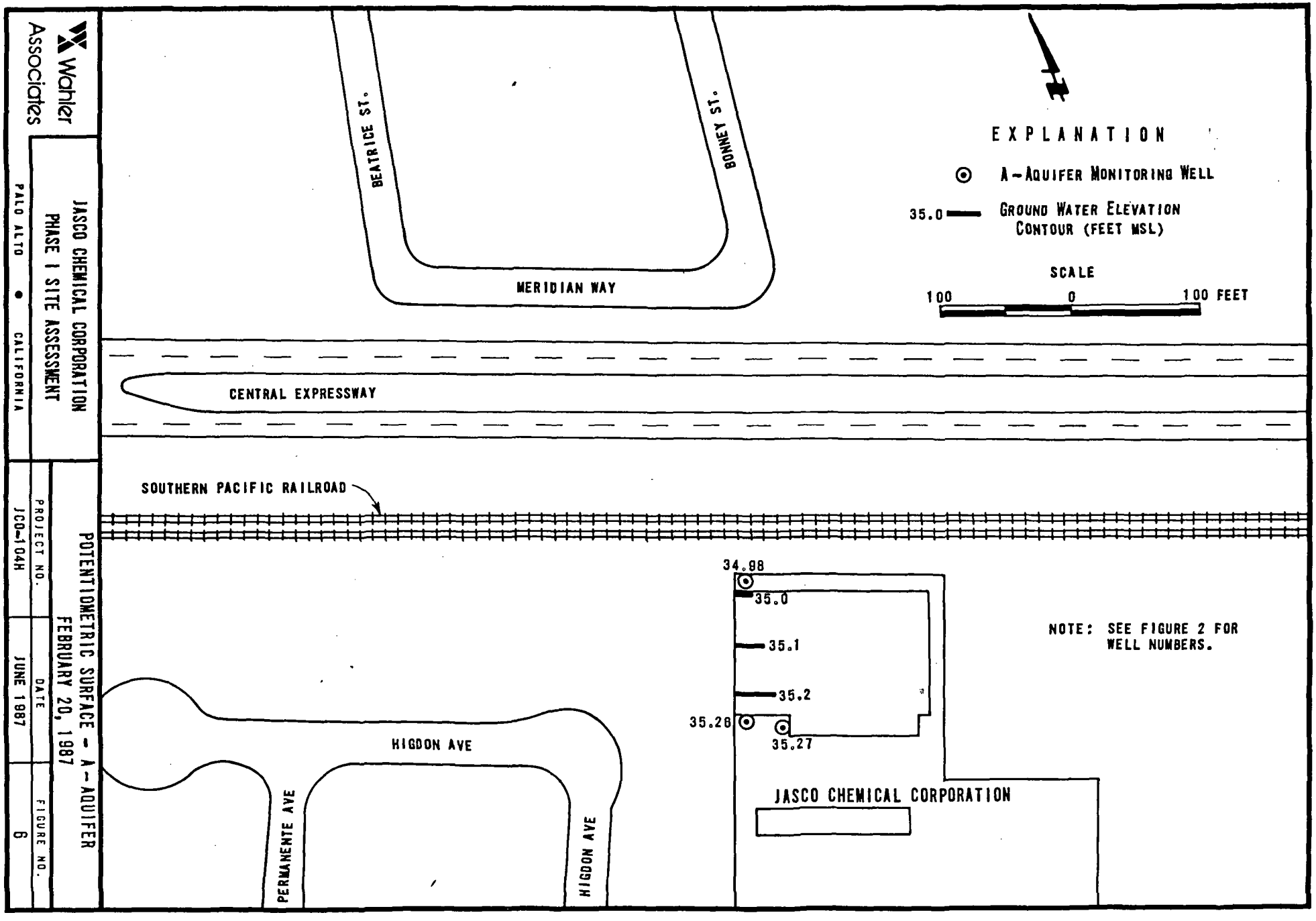
DATE JUNE 1987

FIGURE NO. 4

GEOLOGIC CROSS SECTION B-B'


C
V-6
C'
V-7
FILL
FILL
CL
CL
CL/SC
SP/SC
GP/SP
SC/CL
VADOSE
HIGH PERMEABILITY ZONE
CH
SC/CL
CL
CL
CL
GP
SP
CL
SP
CL/GC
CL
CL
SC
CL
GC
GC
GC
GP
A - AQUIFER
CL
CL
CH
A - B1 AQUITARD
SC
WA
WA
B1 - AQUIFER
FEET ABOVE SEA LEVEL
60
50
40
30
20
10
0
EXPLANATION
WA
WELL INSTALLED BY WAHLER ASSOCIATES
STRATIGRAPHIC BOUNDARY
INFERRED STRATIGRAPHIC BOUNDARY
A-AQUIFER POTENTIOMETRIC SURFACE
SAND PACK
SCREENED INTERVAL
SCALES
40
0
40 FEET
HORIZONTAL
10
0
10 FEET
VERTICAL
VERTICAL EXAGGERATION 4X
NOTE: SEE FIGURE 2 FOR
LOCATION OF SECTION.
Wahler Associates
PALO ALTO • CALIFORNIA
JASCO CHEMICAL CORPORATION
PHASE I SITE ASSESSMENT
GEOLOGIC CROSS SECTION C-C'
PROJECT NO.
JCO-104H
DATE
JUNE 1987
FIGURE NO.
5

.154W



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PALO ALTO • CALIFORNIA

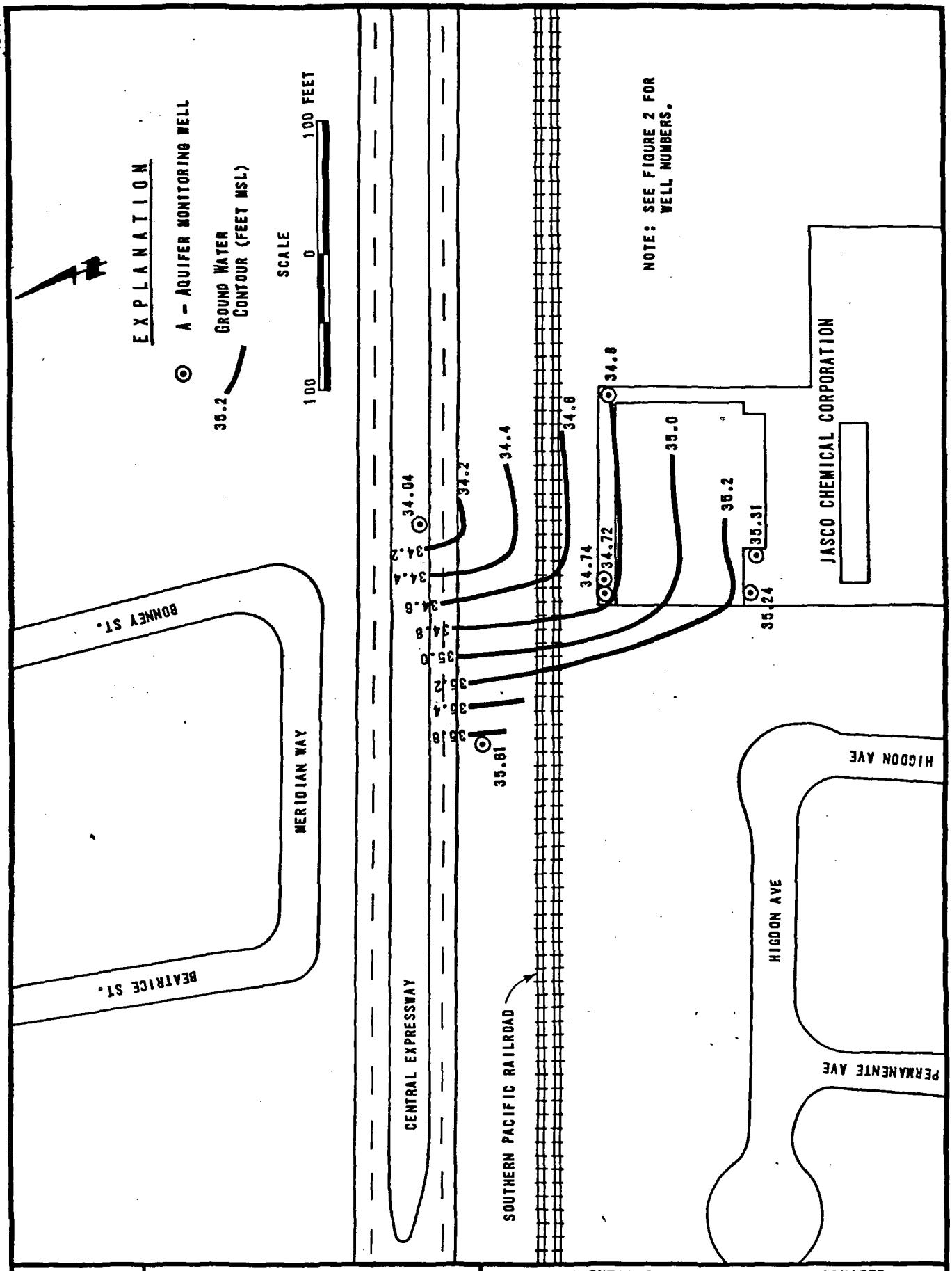
JASCO CHEMICAL CORPORATION
PHASE I SITE ASSESSMENT

POTENTIOMETRIC SURFACE - A-AQUIFER
FEBRUARY 20, 1987

PROJECT NO. JCO-104H

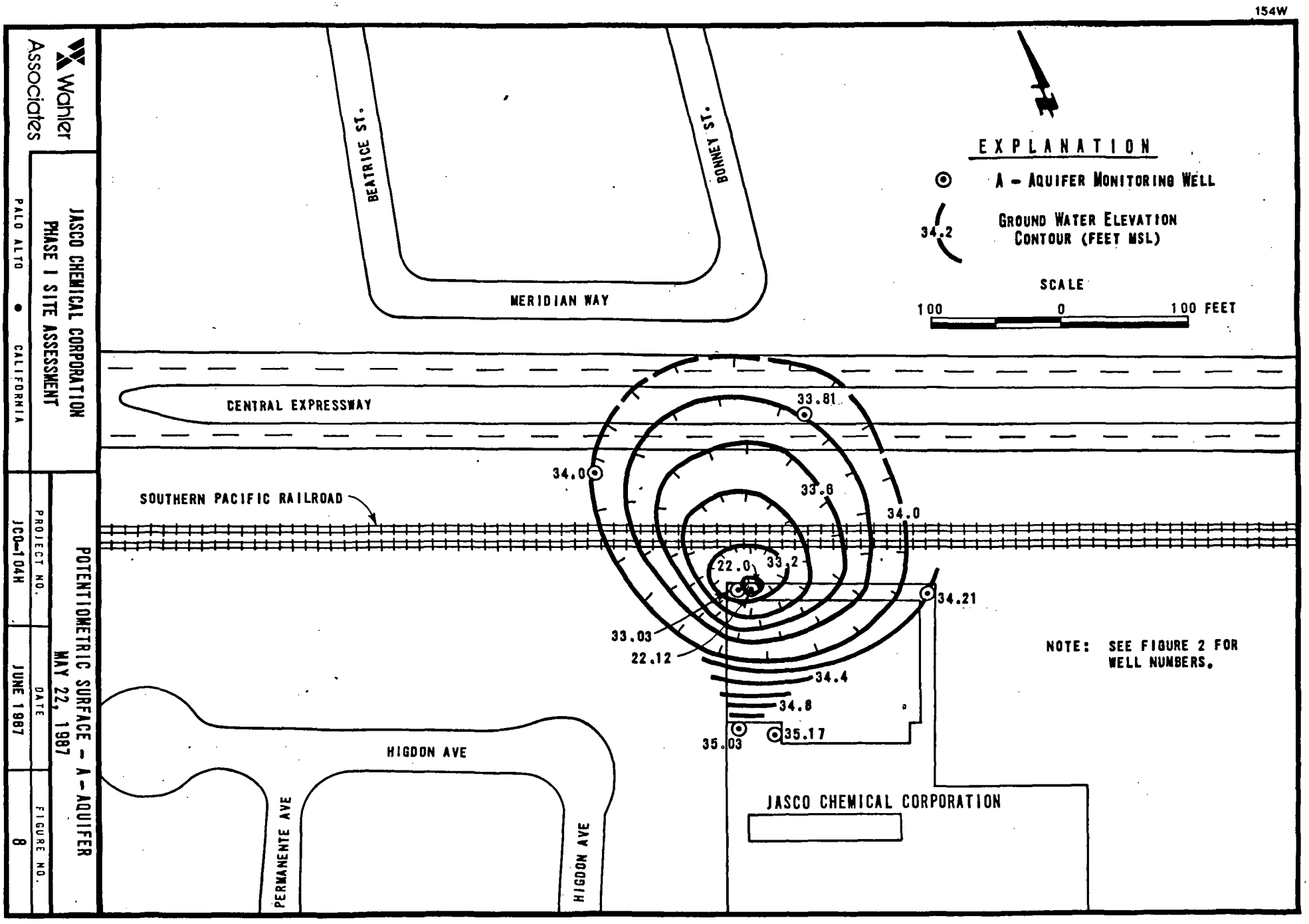
DATE JUNE 1987

FIGURE NO. 6



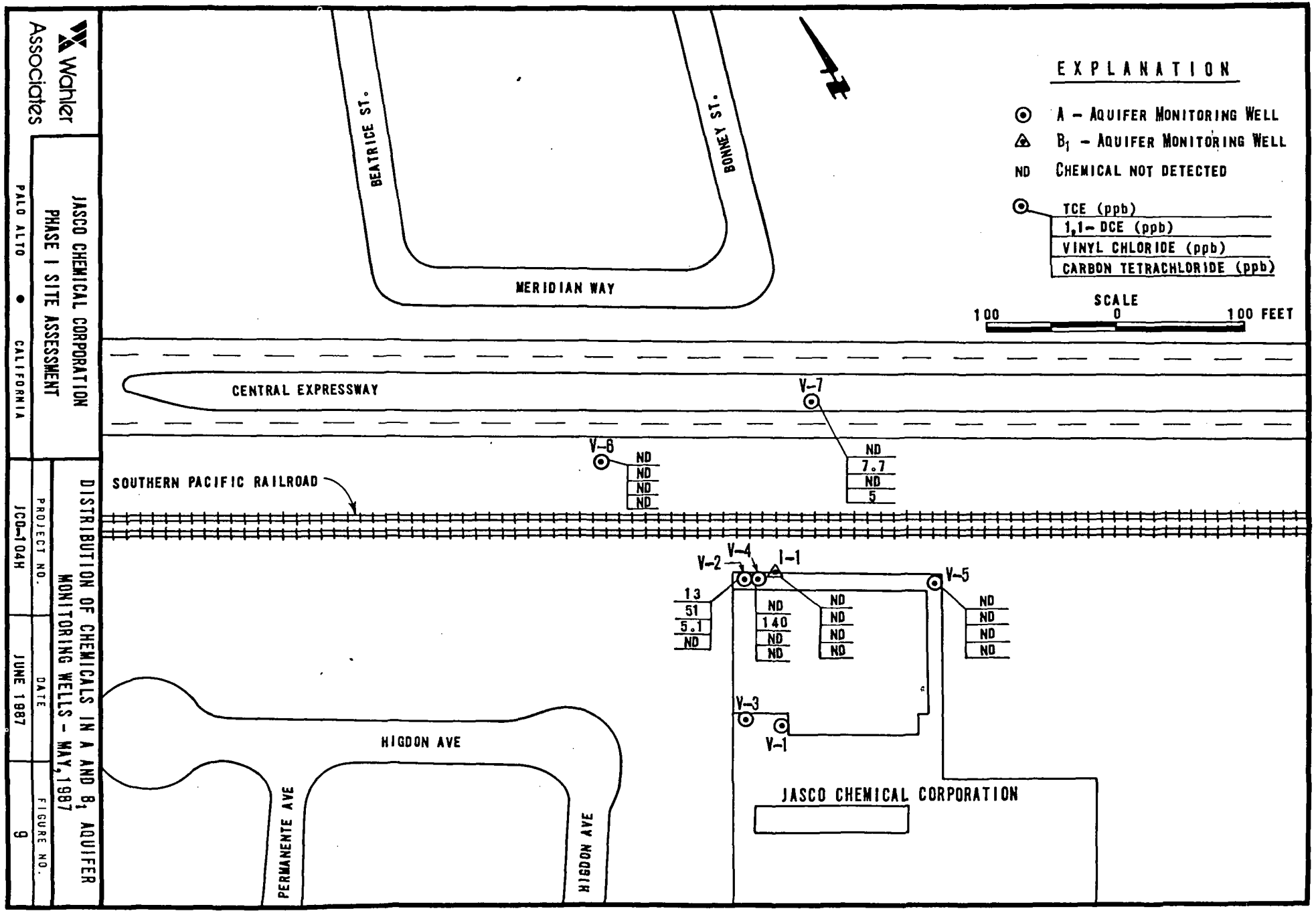
Wahler Associates	JASCO CHEMICAL CORPORATION PHASE 1 SITE ASSESSMENT	POTENTIOMETRIC SURFACE - A-AQUIFER MAY 5, 1987	
		PROJECT NO.	DATE	FIGURE NO.
PALO ALTO • CALIFORNIA		JCO-104H	JUNE 1987	7

OZALID


154W
OZALID
Wahler Associates
PALO ALTO • CALIFORNIA
JASCO CHEMICAL CORPORATION
PHASE I SITE ASSESSMENT
POTENTIOMETRIC SURFACE - A-AQUIFER
MAY 22, 1987
PROJECT NO.
JCO-104H
DATE
JUNE 1987
FIGURE NO.
8
BEATRICE ST.
BONNEY ST.
MERIDIAN WAY
CENTRAL EXPRESSWAY
SOUTHERN PACIFIC RAILROAD
HIGDON AVE
PERMANENTE AVE
HIGDON AVE
JASCO CHEMICAL CORPORATION
EXPLANATION
A - AQUIFER MONITORING WELL
34.2
GROUND WATER ELEVATION CONTOUR (FEET MSL)
SCALE
100 0 100 FEET
33.81
34.0
33.6
34.0
22.0
33.2
34.21
33.03
22.12
34.4
34.8
35.03
35.17
NOTE: SEE FIGURE 2 FOR WELL NUMBERS.

154W

OZALID



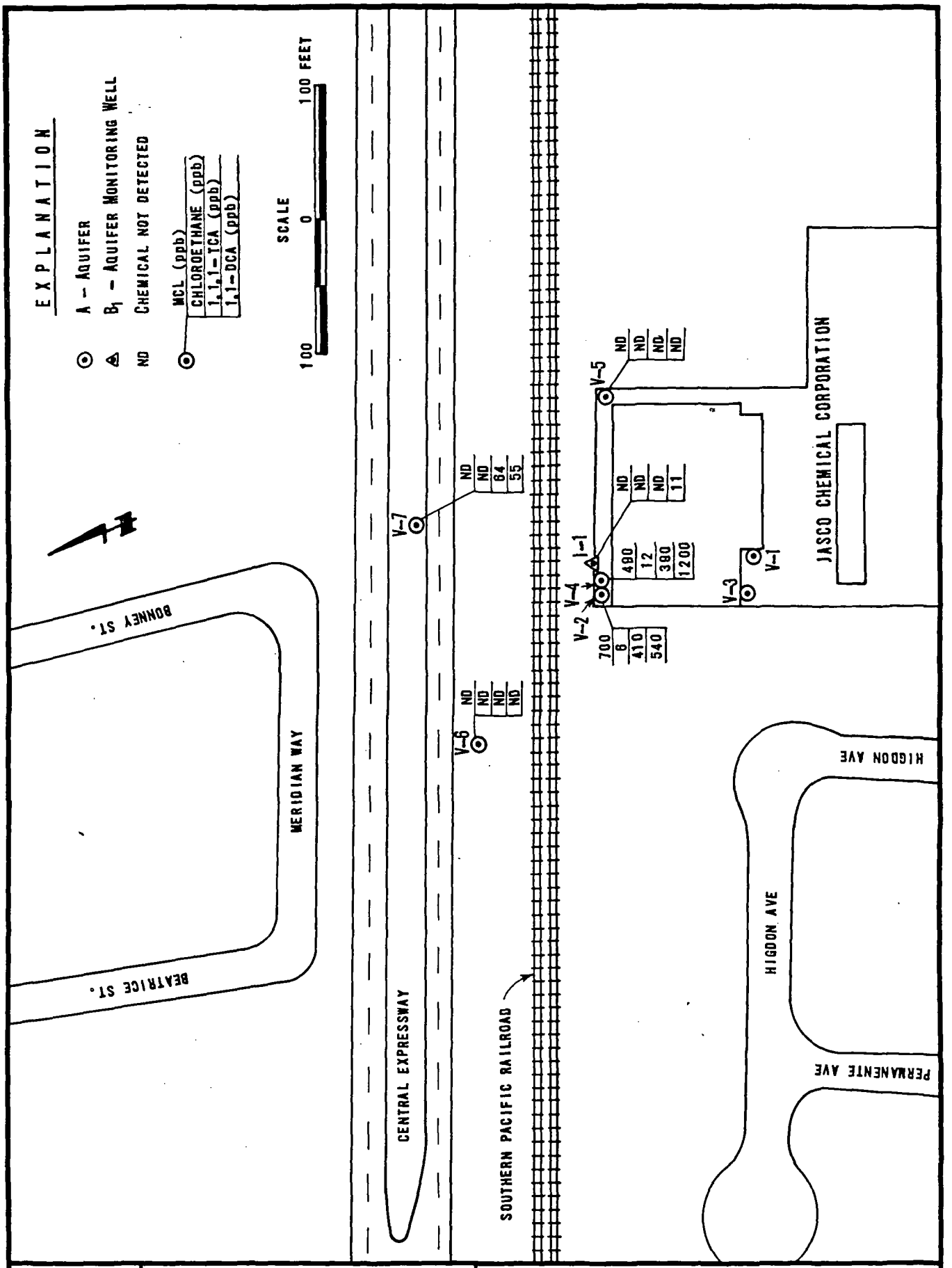
Wahler Associates

PALO ALTO • CALIFORNIA

JASCO CHEMICAL CORPORATION
PHASE I SITE ASSESSMENT

DISTRIBUTION OF CHEMICALS IN A AND B_1 AQUIFER MONITORING WELLS – MAY, 1987

PROJECT NO.	DATE	FIGURE NO.
JCO-104H	JUNE 1987	9



Wahler Associates	JASCO CHEMICAL CORPORATION PHASE I SITE ASSESSMENT	DISTRIBUTION OF CHEMICALS IN A AND B_1 AQUIFER MONITORING WELLS - MAY, 1987		
		PROJECT NO.	DATE	FIGURE NO.
	PALO ALTO ● CALIFORNIA	JCO-104H	JUNE 1987	10

OZALID

APPENDIX A

BORING LOCATION JASCO Chemical Corp. 8' SE of V-2			GROUND EL.
DEPTH/ELEV. WATER 25' 7/3/87 after develop	DRILL CONTRACTOR HEW DRILLING		TOTAL DEPTH 40'
DRILL RIG CME-75	BORING DIA. 10"	DATE DRILLED 4-2-87	LOGGED BY RGB

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	FILL 0.0-3.0' SANDY GRAVEL, light gray dry loose	0				HA	Begin 1340
		2	B-1	2 1 3	1.2 / 1.5	DR	2-3.5' Standard penetration test (SPT) 140 lb hammer 30" drop
CL	ALLUVIUM 3.0-5.0 CLAY, dark gray, damp, 5% coarse sand, highly plastic, very soft, slight sewerage odor	4				HA	
CL	5.0-10.0 SANDY CLAY, blue-gray, damp stiff, 5% coarse sand, 15% fine sand, slight sewerage odor	6	B-2	4 6 7	1.2 / 1.5	DR	5-6.5 SPT
		8				HA	
CL	10.0-14.4 CLAY, greenish black, 5% gravel, high plasticity, stiff, moist, slight sewer odor. 12-13' dark gray 13' increase in moisture	10	B-3	4 4 6	0.8 / 1.5	DR / P	10-11.5 SPT SPT sample lost, 2nd SPT tube pushed spring
		12				HA	
GP	14.4-15.5 SANDY GRAVEL greenish black, up to 1" clasts, medium dense, moist	14	S-4 / B-4	8 10 7	1.2 / 1.5	DR	14-15.5 Cal. modified driven sample Saved for EPA 8010 analysis at 1425, both brass tube samples taken both contacts of sand layer seen in sample
CL	15.5-28.0 SANDY CLAY greenish black, 10% sand very moist, soft, highly plastic	16				HA	
		18					moisture decreases
		20					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG PROJECT NO. JCO-104A SHEET NO. 1 OF 2	BORING NO. V-4

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL	20-25.8 moderate plasticity, very stiff, moist, sewer. DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS BECAUSE THE INFORMATION WAS OBTAINED FROM INDIRECT, DISCONTINUOUS, AND POSSIBLY DISTURBED SAMPLING NECESSITATED BY USE OF SMALL-DIAMETER HOLES. ROTARY AND WASH BORING HOLES HAVE FURTHER COMPLICATIONS IN THIS REGARD BECAUSE OF THE NEED TO USE DRILLING FLUID AND/OR CASING IN ADVANCING HOLES. THIS LOG INDICATES CONDITIONS IN THIS HOLE ONLY ON THE DATE INDICATED AND MAY NOT REPRESENT CONDITIONS AT OTHER LOCATIONS AND ON OTHER DATES. ANY WATER LEVELS SHOWN ARE SUBJECT TO VARIATION. THIS HOLE WAS LOGGED IN SUCH A WAY AS TO PROVIDE DATA PRIMARILY FOR DESIGN PURPOSES AND NOT NECESSARILY FOR THE PURPOSES OF SPECIFIC CONTRACTORS. THE STRATIFICATION LINES OR DEPTH INTERVALS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES, AND THE TRANSITIONS MAY BE GRADUAL. SOIL CLASSIFICATIONS SHOWN ON LOGS ARE FIELD CLASSIFICATIONS BASED ON THE UNIFIED SOILS CLASSIFICATION SYSTEM.	20	S-5/B5	10 12 12	1.4/1.5	DR	20-21.5 Cal modified driven 1440. Two samples taken, one for EPA 8010, one for vertical perm testing
		22			HA	Increase in moisture
		24 ▽				
			B-6	4 6 5	1.5/1.5	DR	25-26.5 SPT. Static water rises to 25'
SC-CL	25.8-26.2 CLAYEY SAND greenish black, 50-70% coarse sand, 30-50% clay	26					
CL						HA	
	28.0-34.8 SANDY GRAVEL greenish black, 20-60% sand, 40-80% gravel.	28					28' - driller says beginning of gravel - water encountered.
GP		30					
	dense, saturated	32	B-7	6 18 22	1.5/1.5	DR	31-32.5 SPT
							33.5-35 SPT
	34.0-34.4 SANDY CLAY greenish black, 30% sand, 70% clay	34	B-8	18 18 7	1.5/1.5	DR	gravel/clay contact seen at 34.8
	34.8-40.0 CLAY, moderate yellow brown, very stiff, very moist, moderate plasticity, <5% sand	36				HA	
CL		38					38.5-40 Cal modified 0-35 PVC 0-25 Grout 25-27 Bentonite 27-35 #2 Sand 28-35 .010 Screen 35-40 Bentonite.
			S-9 B-9	8 12 12	1.4/1.5	DR	
		40					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. JCO-104H	SHEET NO. 2 OF 2	V-4

BORING LOCATION JASCO CHEMICAL CORPORATION			GROUND EL.
DEPTH/ELEV. WATER 32.0'	DRILL CONTRACTOR HEN DRILLING		TOTAL DEPTH 40.5'
DRILL RIG CME-75	BORING DIA. 8"	DATE DRILLED 4-27-87	LOGGED BY RGB

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
	0.0-1.0 · Excavation - Completed during utilities search.	0	CC-1		1.5/2.5	CC	Continuous Sampling used for sample collection
GP	1.0-2.0 FILL SANDY GRAVEL: light brown up to 1" clasts interbedded with sandy clay laminae; dry; loose	2					
	ALLUVIUM						
CL	2.0-8.6 SANDY CLAY: dark brown; damp; 5% coarse sand, poorly graded.	4	CC-2		2.5/2.5	CC	
	5.0-8.6 - Color change to light brown, The sand content varies from 5 to 30%	6	CC-3		2.5/2.5	CC	
		8	CC-4		2.5/2.5	CC	
SC	8.6-12.0 CLAYEY SAND: Light brown 50% sand; 30% clay; 20% gravel, clasts up to 1" diameter; damp.	10	CC-5		2.5/2.5	CC	
	10.5: increase in gravel content						
	12.0-23.5 - Gravely Sand: Light brown, 40-60% sand; 35-55% gravel, clasts up to 1"; 0-5% fines slightly damp, loose	12	CC-6		0.5/2.5	CC	
SP/GP	14.5 - increase in clay content	14					
		16	CC-7		2.5/2.5	CC	
		18	CC-8		0/2.5	CC	CC-8 and CC-9 not recovered due to large gravel clasts impeding removal of sampler. 0.5 feet of CC-8 recovered on second try - not reliable stratigraphically
		20					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. 850-004 / SHEET NO. 1 OF 3	V-5

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SP/GP	12.0-23.5 - Gravely Sand (Cont.)	20					CC-9 not recovered.
			CC-9		0/2.5	CC	
		22					Gravely sand at bottom of core cutter.
			CC-10		2.0/2.5	CC	small clay layers interbedded with gravel.
CL	23.5-31.75 - SANDY CLAY: medium brown, stiff; 50% clay; 25% gravel; moist	24					
	24.0 - decrease in gravel content increase in clay content.						
		26	CC-11		2.5/2.5	CC	
		28	CC-12		2.5/2.5	CC	
	31.75 - increase in water content contact is gradational	30					
CL	31.75-33.5: SILTY CLAY: olive-green, <2% sand, moderate plasticity, moist		CC-13		2.5/2.5	CC	
		32					32.5' standing water
	33.5 - contact is gradational		CC-14		2.5/2.5	CC	standing water at 34.1' < 1 foot of standing water
GP	33.5-36.5 - CLAYEY GRAVEL, greenish black; 60% gravel; 20% sand, 20% fines; wet	34					
		36	CC-15		2.5/2.5	CC	
CL	36.5-39.5 - Silty Clay: greenish black, 0-5% sand; moderate plasticity; stiff	38	CC-16		1.0/2.5	P	CC-16 pushed, not drilled, hard clay encountered, not all recovered, standing water at 32.0'
CL	39.5-40.5 - SANDY CLAY: light brown, 20-40% very fine sand 60%-80% fines; moderate plasticity	40					

Wahler Associates	JASCO CHEMICAL CORP	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. JCO 1004.12 / SHEET NO. 2 OF 3	V-5

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
	39.5-40.5± SANDY CLAY (CONT.)	40					39.5 - 40.5 - RECOVERED, AT 40.5 THE SAMPLER COULD NOT BE PUSHED FURTHER BECAUSE OF SETH CLAYS SO BORING WAS STOPPED AT 40.5'
	40.5' END OF BORING	42					
		44					WELL CONSTRUCTION INFO. 0-0-31.0' - GROUT 31.0-32.0 - BENTONITE 32.0-36.5 - SAND 33.5-36.5 - SCREEN. 36.5-40.5 - BENTONITE
		46					
		48					
		50					
		52					
		54					
		56					
		58					
		60					

DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS BECAUSE THE INFORMATION WAS OBTAINED FROM INDIRECT, DISCONTINUOUS, AND POSSIBLY DISTURBED SAMPLING NECESSITATED BY USE OF SMALL-DIAMETER HOLES. ROTARY AND WASH BORING HOLES HAVE FURTHER COMPLICATIONS IN THIS REGARD BECAUSE OF THE NEED TO USE DRILLING FLUID AND/OR CASING IN ADVANCING HOLES.

THIS LOG INDICATES CONDITIONS IN THIS HOLE ONLY ON THE DATE INDICATED AND MAY NOT REPRESENT CONDITIONS AT OTHER LOCATIONS AND ON OTHER DATES. ANY WATER LEVELS SHOWN ARE SUBJECT TO VARIATION.

THIS HOLE WAS LOGGED IN SUCH A WAY AS TO PROVIDE DATA PRIMARILY FOR DESIGN PURPOSES AND NOT NECESSARILY FOR THE PURPOSES OF SPECIFIC CONTRACTORS.

THE STRATIFICATION LINES OR DEPTH INTERVALS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES, AND THE TRANSITIONS MAY BE GRADUAL.

SOIL CLASSIFICATIONS SHOWN OR LOGS ARE FIELD CLASSIFICATIONS BASED ON THE UNIFIED SOILS CLASSIFICATION SYSTEM.

Wahler Associates	JASCO CHEMICAL CORP	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. JCO-7041-7 / SHEET NO. 3 OF 3	V-5

BORING LOCATION JASCO CHEMICAL CORPORATION			GROUND EL.
DEPTH/ELEV. WATER 24.5'	DRILL CONTRACTOR HEW DRILLING		TOTAL DEPTH 47.5'
DRILL RIG CME-75	BORING DIA. 8"	DATE DRILLED 4-28-87	LOGGED BY RGB

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL	FILL 0.0-4.5: GRAVELLY CLAY: dark brown; low plasticity; 60% clay, 20% sand, 20% gravel, up to 1" diameter, loose, dry, earthy odor.	0 2 4	CC-1 CC-2		2.5/2.5 1.5/2.5		
CL	ALLUVIUM 4.5-13.0 - LEAN CLAY: dark brown, <20% coarse material, iron staining within cracks, moderate plasticity, slightly damp 7.5 - fine sand content increases to 10% 8.0 - color change to yellow-brown 9.0 - color change to greenish-black, sand content decreases to <5%, low to moderate plasticity.	6 8 10	CC-3 CC-4 CC-5		2.5/2.5 2.5/2.5 2.5/2.5		
CL/SC	13.0-14.5 - SANDY CLAY: yellow brown, sand content increases with depth from 13 to 14.5 feet, slightly damp, caliche mottling	12 14	CC-6		2.0/2.5		contacts are gradational
SP/SC	14.5-16.0 Gravely Sand: yellow brown, gravel content increases with depth towards 16.0 feet, 40-60% gravel, 40-60% sand 0-10% fines	16	CC-7		2.5/2.5		
GP/SP	16.0 17.5 - Sandy Gravel: Yellow brown: 40-60% gravel, clasts up to 1" long; 40-60% sand, medium 0-5% fines; dry, loose, caliche mottling	18	CC-8		2.5/2.5		
SC/CL	17.5-19.5 - Clayey sand: yellow brown, 50-60% sand, 40-50% clay, damp						
CH	19.5-21.5 - clay: yellow brown; <5% fine gravel; high plasticity.	20					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO. V-6
		PROJECT NO. JCO-1041A	SHEET NO. 1 OF 3

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CH	19.5-21.5 - CLAY (cont.)	20					
			CC-9		2.5/2.5	CC	
SC/CL	21.5-26.5 - Clayey Sand: medium brown; 40-50% CH, 40-50% sand, 0-10% gravel up to 1" long, damp, 0.25" diameter oxidized clay nodules dispersed in clay. 22.5 - gravel content increases to 20-40%. 25.0 - water present in 3" gravel lens: very moist.	22					
			CC-10		1.0/2.5	CC	
		24					
			CC-11		2.5/2.5	CC	
CL	26.5-35.5 - GRAVELY CLAY: blue, 5-15% fine gravel; moderate plasticity, nodules present, caliche mottling, damp	26					
			CC-12		2.5/2.5	CC	
		28					
			CC-13		2.5/2.5	CC	
	32.5 - moderate to high plasticity, 10% gravel clasts up to 0.25" diameter	30					
			CC-14		2.5/2.5	CC	
		32					
GC	35.5-38.0 - Clayey Gravel: blue 30-40% clay, 10-20% sand, 40-60% gravel, very moist.	34					
			CC-15		2.5/2.5	CC	
		36					
GC	38.0-39.0 - CLAYEY GRAVEL: yellow brown, 40-60% gravel, 30-40% clay 10-20% sand, very moist.	38	CC-16		1.0/2.5	CC	
GP	39.0-42.7 - Sandy Gravel: yellow brown, 40% coarse sand, 40% fine gravel, 20% gravel clasts up to 0.5" long. Saturated.	40					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. JCO-104H / SHEET NO. 2 of 3	V-6

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	39.0-42.7 Sandy Gravel (cont.)	40					
			CC-17		2.5/2.5	CC	
		42					
CL	42.7-47.3: Clay: yellow brown; 0-10% medium to coarse sand, moderate plasticity, occasional rootlets, caliche veinlets. 43.7- Color change to mottled olive green/brown.		CC-18		2.5/2.5	CC	4.8' aquitard
		44					
	46.9- Color change to yellow brown		CC-19		2.5/2.5	CC	
		46					
SC	47.3-47.5- CLAYEY SAND; Yellow brown; 80-90% Medium Sand, 10-20% fines, very moist.						Well Construction Info:
	END OF BORING 47.5'	48					0.0-34.5 - Grout 34.5-35.5 - Bentonite 35.5-42.7 - Sand 37.5-42.7 - Screen 42.7-47.5 - Bentonite
		50					
		52					
		54					
		56					
		58					
		60					

DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS BECAUSE THE INFORMATION WAS OBTAINED FROM INDIRECT, DISCONTINUOUS, AND POSSIBLY DISTURBED SAMPLING NECESSITATED BY USE OF SMALL-DIAMETER HOLES. ROTARY AND WASH BORING HOLES HAVE FURTHER COMPLICATIONS IN THIS REGARD BECAUSE OF THE NEED TO USE *DRILLING FLUID* AND/OR CASING IN ADVANCING HOLES.

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THE STRATIFICATION LINES ON DEPTH INTERVALS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES, AND THE TRANSITIONS MAY BE GRADUAL.

SOIL CLASSIFICATIONS SHOWN ON LOGS ARE FIELD CLASSIFICATIONS BASED ON THE UNIFIED SOILS CLASSIFICATION SYSTEM.

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. JCO-104H / SHEET NO. 3 OF 3	V-6

BORING LOCATION JASCO CHEMICAL CORPORATION			GROUND EL.
DEPTH/ELEV. WATER 24.0' final	DRILL CONTRACTOR HEW DRILLING		TOTAL DEPTH 42.5
DRILL RIG CME-75	BORING DIA. 8"	DATE DRILLED 4-29-87	LOGGED BY RGB

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR/RQD	REC.	MODE	REMARKS
CL	FILL 0.0-1.7: SANDY CLAY: dark brown 60% clay, 40% sand; moderate plasticity, earthy odor, twig and leaf fragments, dry, loose	0	CC-1		2.5/2.5	CC	
CL	ALLUVIUM 1.7-10.5: LEAN CLAY: dark brown 0-5% gravel, fine; organic odor twig fragments, moderate plasticity, caliche veinlets, slightly damp, stiff.	2	CC-2		2.5/2.5	CC	
		4	CC-3		2.5/2.5	CC	
		6	CC-4		2.5/2.5	CC	
		8	CC-5		2.5/2.5	CC	
	10.5-22.0: LEAN CLAY: yellow brown; 0-5% coarse sand; caliche veinlets; moderate plasticity, moist,	10	CC-6		2.5/2.5	CC	
CL	13.0 - Color change to mottled blue-green / yellow brown 13.8 - Color change to yellow-brown	12	CC-7		2.5/2.5	CC	
	16.5 - Increase in gravel content to up to 20% gravel, clasts 0.25"-0.75" long.	14	CC-8		2.0/2.5	CC	
		16					
		18					
		20					

Wahler Associates	JASCO CHEMICAL CORP	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. 310-1042 / SHEET NO. 1 OF 3	V-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL	10.5-22.0 : LEAN CLAY (CONT)	20	CC-9		2.5/2.5	CC	
GP	22.0-26.0 : Sandy Gravel: yellow brown; 60% Gravel, 40% coarse sand; Gravel clasts up to 0.5" long; very wet to saturated, gravel clasts subangular to subrounded	22	CC-10		0/2.5	CC	22.5' water encountered - CC-10 not recovered
SP	26.0-26.9 : Gravely Sand; yellow-brown saturated	24	CC-11		2.0/2.5	CC	
CL	26.9-27.1 : clay : mottled blue/yellow brown	26					
SP	27.1-27.3 - Gravely sand : yellow-brown						
CL/GC	27.3-28.3 - Gravely clay : Yellow-brown 40-60 % clay, 40-60% fine gravel very wet to saturated	28	CC-12		2.5/2.5	CC	
CL	28.3-29.8 - Sandy Clay : yellow-brown 60% clay, 30% sand, 10% gravel; very wet						
CL	29.8-30.8 - clay; blue-green; <5% coarse sand; moderate to high plasticity; MOIST	30	CC-13		2.5/2.5	CC	
SC	30.8 - 33.25 - Clayey Sand; yellow-brown; 70% medium sand, 30% clay, occasional gravel clasts very MOIST TO SATURATED	32	CC-14		2.5/2.5	CC	
CL	33.25-35.25 - Sandy Clay: blue-green; 70% clay, 30% sand; moderate plasticity - saturated.	34	CC-15		2.5/2.5	CC	
GC	35.25-35.5 - Sandy Gravel: greenish-black;						
CL	35.5-39.6 - GRAVELY CLAY: greenish black; 60-80% clay, 20-40% gravel up to 0.5" diameter, moderate plasticity, MOIST. 37.5 clay percent increases to 80-90 %	36	CC-16		2.5/2.5	CC	
CH	39.6-42.5 - CLAY: yellow brown 95-99 % clay, 0-4 1/2 medium sand. high plasticity; MOIST.	38					
		40					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. 320-10:1W / SHEET NO. 2 OF 3	V-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CH	39.6-42.5 - CLAY (cont.)	40	CC-17		2.5/2.5	CC	
	END OF BORING 42.5'	42					Standing water at 24.0', 8 feet of standing water
		44					Well Construction Info 0.0-21.0 - GROUT 21.0-22.0 - BENTONITE 22.0-35.5 - SAND 24-35.5 - SCREEN 35.5-42.5 - BENTONITE
		46					
		48					
		50					
		52					
		54					
		56					
		58					
		60					

DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS BECAUSE THE INFORMATION WAS OBTAINED FROM INDIRECT, DISCONTINUOUS, AND POSSIBLY DISTURBED SAMPLING NECESSITATED BY USE OF SMALL-DIAMETER HOLES. ROTARY AND WASH BORING HOLES HAVE FURTHER COMPLICATIONS IN THIS REGARD BECAUSE OF THE NEED TO USE DRILLING FLUID AND/OR CASING IN ADVANCING HOLES.

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Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. JCO-1044 / SHEET NO. 3 OF 3	V-7

BORING LOCATION JASCO CHEMICAL CORPORATION			GROUND EL.
DEPTH/ELEV. WATER 25.0 (A) 26.8 (B,)	DRILL CONTRACTOR HEW DRILLING		TOTAL DEPTH 62.5
DRILL RIG CME-75	BORING DIA. 8"	DATE DRILLED 4/27-5/11/87	LOGGED BY RGB

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GC	FILL 0.0-2.0- SANDY GRAVEL: Light brown; 60% Gravel, Cobbles to 1.5" diameter, 40% Sand, dry, loose	0	CC-1		0.6/2.5	CC	
CL	2.0-11.5: LEAN CLAY: Dark brown 98% fines, <2% Medium to Coarse Sand, moderate plasticity, damp.	2	CC-2		2.5/2.5	CC	
	6.5- Color change to greenish-black, increase in non-plastic fines	4	CC-3		2.5/2.5	CC	
	8.5- further increase in non-plastic fines	6	CC-4		2.5/2.5	CC	
	11.5- Color change to mottled greenish black/light brown.	8	CC-5		2.5/2.5	CC	
GP	14.5-17.0- SANDY GRAVEL: greenish black; alternating Sandy Gravel / Gravelly Sand Layers. 10-80% Gravel, 20-90% medium Sand, moist, loose to very loose.	10	CC-6		2.0/2.5	CC	
CL	17.0-17.5- SANDY CLAY: medium brown	12					
GP	17.5-19.8- Sandy Gravel: Mottled medium brown/Greenish black.	14	CC-7		2.5/2.5	CC	
CL	19.8-20.8: Sandy Clay: Medium brown.	16					
		18	CC-8		2.0/2.5	CC	
		20					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. 3C0-104.1	SHEET NO. 1 of 4	I-1

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL	19.8-20.8: Sandy Clay (Cont.)	20					
GP	20.8-21.8 - Sandy Gravel: Mottled greenish black/medium brown		CC-9		2.5/2.5	CC	
CL	21.8-22.5: Lean Clay: Mottled greenish black/medium brown	22					
CL	22.5-32.5 Sandy Clay; greenish brown; sand content decreases with increasing depth		CC-10		2.5/2.5	CC	
	25.0 - Color change to greenish-black	24					
			CC-11		2.5/2.5	CC	
CL	27.5 - Strong sewer odor	26					
			CC-12		2.5/2.5	CC	
	30.0 - <2% Coarse Sand	28					
			CC-13		2.5/2.5	CC	
		30					
	32.5-35.0: SANDY GRAVEL: greenish black, 40% gravel, 40% Sand, 20% Clay, strong sewer odor	32					32.0 - water encountered
GC/SC			CC-14		0.8/2.5	CC	
	35.0-39.8: Gravely Sand: greenish-black; 80-90% Medium Sand; 10-20% gravel	34					
			CC-15		2.5/2.5	DR	
SP		36					
			CC-16		1.5/1.5	CC	
		38					
CL	39.8-46.3: CLAY: Light brown 95% fines, 5-10% fine Sand; moderate plasticity	40					

Wahler Associates	JASCO CHEMICAL CORP	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. JCO-1041F / SHEET NO. 2 OF 4	I-1

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL	39.8-46.3 - CLAY (cont.)	40	CC-17		1.0/1.0	CC	bentonite from 39.8-41.0 at end of day 4-27-87 41.0 END OF BORING 4/27/87, WORK CONTINUED 5/1/87; CASING PUSHED TO 48.0' 46.0 ; END OF BORING 5/1/87, WORK RESUMED 5/11/87.
		42	CC-18		0.8/2.5		
		44	CC-19		1.0/2.5		
		46	B-1		0.7/2.5	CC	46.3-47.8: Extremely rough drilling; core tubes broken; material recovered placed in plastic bags.
SP/GP	46.3-57.5 - GRAVELLY SAND greenish black, 25-75% medium sand, 25-75% Gravel, very dense, very moist, possibly partially cemented 47.2 - Color change to yellow-brown 47.8 - material not cemented, saturated 50.0 : Gravel Clasts up to 1" diameter.		B-2		2.5/2.5	CC	
		48	CC-20		2.5/2.5	CC	
		50	B21A B21B		2.5/2.5	CC	Tube broken - sample placed in plastic bag.
		52	B-22		2.5/2.5	CC	
		54					55.0 - Sand in hollow stem - Sampler Jammed CC-22 broken, sample placed in bags
	56.0 - iron staining in sand matrix surrounding gravel clasts	56	CC-23		1.5/2.5	CC	56.0 - drills like sand. 57.0 - drills like clay
CL/SC	57.5-62.5 - SANDY CLAY; yellow-brown; 30-50% clay, 30-50% fine sand; soft, very moist.	58	CC-24		0/2.5	CC	CC-24 - no recovery
		60					

Wahler Associates	JASCO CHEMICAL CORP.	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. SCO-1041A / SHEET NO. 3 OF 4	T-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
	57.5-62.5 SANDY CLAY (Cont.)	60	CC-25		2.5/2.5	CC	
	62.5' END OF BORING	62					WATER AT 26.8'
		64					Well Construction Info 0-40'-GROUT 40-46.3 BENTONITE 46.3-57.5 SAND 48.3-57.5 SCREEN 57.5-62.5 : BENTONITE well installed 5/11/87 GROUT SEAL PLACED 5/12/87

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Wahler Associates	JASCO CHEMICAL CORP	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. 300-1042 / SHEET NO. 4 OF 4	I-1

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 12/17/86
Date Received: 12/18/86
Date Extracted: 12/18/86
Date Reported: 12/19/86
Project No. JCO-101A

Sample Number
6121123

Sample Description
Water - JCO-101A V-2

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein	-	trans-1,2-Dichloroethene	< 5.0
Acrylonitrile	-	1,2-Dichloropropane	< 5.0
Benzene	-	1,3-Dichloropropene	< 5.0
Bromomethane	< 5.0	Ethylbenzene	-
Bromodichloromethane	< 5.0	Methylene chloride	30,000
Bromoform	< 5.0	1,1,2,2-Tetrachloroethane	< 5.0
Carbon tetrachloride	< 5.0	Tetrachloroethene	8.0
Chlorobenzene	-	1,1,1-Trichloroethane	540
Chloroethane	170	1,1,2-Trichloroethane	< 5.0
2-Chloroethylvinyl ether	< 5.0	Trichloroethene	19
Chloroform	< 5.0	Toluene	-
Chloromethane	< 5.0	Vinyl chloride	< 5.0
Dibromochloromethane	< 5.0	1,2-Dichlorobenzene	< 5.0
1,1-Dichloroethane	880	1,3-Dichlorobenzene	< 5.0
1,2-Dichloroethane	< 5.0	1,4-Dichlorobenzene	< 5.0
1,1-Dichloroethene	< 5.0		

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 601 of the EPA was used for this analysis.

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Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 12/17/86
Date Received: 12/18/86
Date Extracted: 12/18/86
Date Reported: 12/19/86
Project No. JCO-101A

Sample Number	Sample Description
6121122	Travel Blank

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein	-		trans-1,2-Dichloroethene	<	0.5
Acrylonitrile	-		1,2-Dichloropropane	<	0.5
Benzene	-		1,3-Dichloropropene	<	0.5
Bromomethane	<	0.5	Ethylbenzene		-
Bromodichloromethane	<	0.5	✗ Methylene chloride	<	0.5
Bromoform	<	0.5	1,1,2,2-Tetrachloroethane	<	0.5
Carbon tetrachloride	<	0.5	Tetrachloroethene	<	0.5
Chlorobenzene	-		✗ 1,1,1-Trichloroethane	<	0.5
Chloroethane	<	0.5	1,1,2-Trichloroethane	<	0.5
2-Chloroethylvinyl ether	<	0.5	Trichloroethene	<	0.5
Chloroform	<	0.5	✗ Toluene		-
Chloromethane	<	0.5	Vinyl chloride	<	0.5
Dibromochloromethane	<	0.5	1,2-Dichlorobenzene	<	0.5
1,1-Dichloroethane	<	0.5	1,3-Dichlorobenzene	<	0.5
1,2-Dichloroethane	<	0.5	1,4-Dichlorobenzene	<	0.5
1,1-Dichloroethene	<	0.2			

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 601 of the EPA was used for this analysis.

SCIENTIFIC ENVIRONMENTAL

LABORATORIES, INC.

February 26, 1987
Lab. #TF870381

Wahler Associates
1023 Corporation Way
P.O. Box 10023
Palo Alto, Ca. 94303

Attn: Mr. Bob Breynaert

MAR 20 1987

WAHLER ASSOCIATES

certified analytical report

Sample Received: 2-20-87

Date Collection: 2-20-87

Source: JCO-104 H, V-2 @ 10:35

Analysis	Results (ug/L	Analysis	Results (ug/L)
Bromodichloromethane	< 500	1,2-Dichloroethane	2580
Bromoform	< 500	1,1-Dichloroethene	< 500
Bromomethane	< 500	Trans-1,2-Dichloroethene	< 500
Carbon Tetrachloride	< 500	1,2-Dichloropropane	< 500
Chlorobenzene	< 500	cis-1,3-Dichloropropene	< 500
Chloroethane	< 500	Trans-1,3-Dichloropropene	< 500
2-Chloroethylvinyl Ether	< 500	Methylene Chloride	86000
Chloroform	< 500	1,1,2,2-Tetrachloroethane	< 500
Chloromethane	< 500	Tetrachloroethene	< 500
Dibromochloromethane	< 500	1,1,1-Trichloroethane	2040
1,2-and/or-1,4-Dichlorobenzene	< 500	1,1,2-Trichloroethane	< 500
1,3-Dichlorobenzene	< 500	Trichloroethene	< 500
1,1-Dichloroethane	< 500	Vinyl Chloride	< 500

Note: Sample was diluted 1 to 500 x, therefore Detection Limit increased by 500 x.

Shui Fong
Director, Water Laboratory

SF:dc
cc: Mr. Dan Thomas

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: -
Date Received: 03/02/87
Date Extracted: 03/09/87
Date Reported: 03/17/87
Project No. JCO-104A

Sample Number	Sample Description
7030004	Water, V-2

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein	-	trans-1,2-Dichloroethene	< 5.0
Acrylonitrile	-	1,2-Dichloropropane	< 5.0
Benzene	-	1,3-Dichloropropene	< 5.0
Bromomethane	< 5.0	Ethylbenzene	-
Bromodichloromethane	< 5.0	Methylene chloride	1,600
Bromoform	< 5.0	1,1,2,2-Tetrachloroethane	< 5.0
Carbon tetrachloride	< 5.0	Tetrachloroethene	< 5.0
Chlorobenzene	-	1,1,1-Trichloroethane	610
Chloroethane	80	1,1,2-Trichloroethane	< 5.0
2-Chloroethylvinyl ether	< 5.0	Trichloroethene	< 5.0
Chloroform	< 5.0	Toluene	-
Chloromethane	< 5.0	Vinyl chloride	< 5.0
Dibromochloromethane	< 5.0	1,2-Dichlorobenzene	< 5.0
1,1-Dichloroethane	1,200	1,3-Dichlorobenzene	< 5.0
1,2-Dichloroethane	< 5.0	1,4-Dichlorobenzene	< 5.0
1,1-Dichloroethene	110		

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

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Attn: Bob Breynaert

Date Sampled: -
Date Received: 03/02/87
Date Extracted: 03/09/87
Date Reported: 03/17/87
Project No. JCO-104A

Sample Number
7030005

Sample Description
Water, B-4 (Field Blank)

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein	-	trans-1,2-Dichloroethene	< 0.5
Acrylonitrile	-	1,2-Dichloropropane	< 0.5
Benzene	-	1,3-Dichloropropene	< 0.5
Bromomethane	< 0.5	Ethylbenzene	-
Bromodichloromethane	< 0.5	Methylene chloride	< 0.5
Bromoform	< 0.5	1,1,2,2-Tetrachloroethane	< 0.5
Carbon tetrachloride	< 0.5	Tetrachloroethene	< 0.5
Chlorobenzene	-	1,1,1-Trichloroethane	< 0.5
Chloroethane	< 0.5	1,1,2-Trichloroethane	< 0.5
2-Chloroethylvinyl ether	< 0.5	Trichloroethene	< 0.5
Chloroform	< 0.5	Toluene	-
Chloromethane	< 0.5	Vinyl chloride	< 0.5
Dibromochloromethane	< 0.5	1,2-Dichlorobenzene	< 0.5
1,1-Dichloroethane	< 0.5	1,3-Dichlorobenzene	< 0.5
1,2-Dichloroethane	< 0.5	1,4-Dichlorobenzene	< 0.5
1,1-Dichloroethene	< 0.2		

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 601 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Joel Lindsay

Date Sampled: 03/19/87
Date Received: 03/19/87
Date Extracted: 03/19/87
Date Reported: 03/24/87
Project #JCO-104H

Sample Number	Sample Description
7031101	V-2

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein	-	trans-1,2-Dichloroethene	< 50
Acrylonitrile	-	1,2-Dichloropropane	< 50
Benzene	-	1,3-Dichloropropene	< 50
Bromomethane	< 50	Ethylbenzene	-
Bromodichloromethane	< 50	Methylene chloride	2400
Bromoform	< 50	1,1,2,2-Tetrachloroethane	< 50
Carbon tetrachloride	< 50	Tetrachloroethene	< 50
Chlorobenzene	-	1,1,1-Trichloroethane	510
Chloroethane	< 50	1,1,2-Trichloroethane	< 50
2-Chloroethylvinyl ether	< 50	Trichloroethene	< 50
Chloroform	< 50	Toluene	-
Chloromethane	< 50	Vinyl chloride	< 50
Dibromochloromethane	< 50	1,2-Dichlorobenzene	< 50
1,1-Dichloroethane	900	1,3-Dichlorobenzene	< 50
1,2-Dichloroethane	< 50	1,4-Dichlorobenzene	< 50
1,1-Dichloroethene	< 20		

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 601 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Joel Lindsay

Date Sampled: -
Date Received: 03/19/87
Date Extracted: 03/19/87
Date Reported: 03/24/87

Sample Number	Sample Description
7031100	Travel Blank

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein	-	trans-1,2-Dichloroethene	< 0.5
Acrylonitrile	-	1,2-Dichloropropane	< 0.5
Benzene	-	1,3-Dichloropropene	< 0.5
Bromomethane	< 0.5	Ethylbenzene	-
Bromodichloromethane	< 0.5	Methylene chloride	< 0.5
Bromoform	< 0.5	1,1,2,2-Tetrachloroethane	< 0.5
Carbon tetrachloride	< 0.5	Tetrachloroethene	< 0.5
Chlorobenzene	-	1,1,1-Trichloroethane	< 0.5
Chloroethane	< 0.5	1,1,2-Trichloroethane	< 0.5
2-Chloroethylvinyl ether	< 0.5	Trichloroethene	< 0.5
Chloroform	< 0.5	Toluene	-
Chloromethane	< 0.5	Vinyl chloride	< 0.5
Dibromochloromethane	< 0.5	1,2-Dichlorobenzene	< 0.5
1,1-Dichloroethane	< 0.5	1,3-Dichlorobenzene	< 0.5
1,2-Dichloroethane	< 0.5	1,4-Dichlorobenzene	< 0.5
1,1-Dichloroethene	< 0.2		

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

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NOTE: Method 601 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/05/87
Date Received: 05/06/87
Date Extracted: 05/18/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description
7050225	Water, V-2

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein		-	trans-1,2-Dichloroethene	<	5
Acrylonitrile		-	1,2-Dichloropropane	<	5
Benzene		-	1,3-Dichloropropene	<	5
Bromomethane	<	5	Ethylbenzene		-
Bromodichloromethane	<	5	Methylene chloride		700
Bromoform	<	5	1,1,2,2-Tetrachloroethane	<	5
Carbon tetrachloride	<	5	Tetrachloroethene	<	5
Chlorobenzene		-	1,1,1-Trichloroethane		410
Chloroethane		6.0	1,1,2-Trichloroethane	<	5
2-Chloroethylvinyl ether	<	5	Trichloroethene		13
Chloroform	<	5	Toluene		-
Chloromethane	<	5	Vinyl chloride		5.1
Dibromochloromethane	<	5	1,2-Dichlorobenzene	<	5
1,1-Dichloroethane		540	1,3-Dichlorobenzene	<	5
1,2-Dichloroethane	<	5	1,4-Dichlorobenzene	<	5
1,1-Dichloroethene		51			

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

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NOTE: Method 601 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 01/30/87
Date Received: 01/30/87
Date Extracted: 02/03/87
Date Reported: 02/18/87

Sample Number: 7011660

Sample Description: Water, V-3

PRIORITY POLLUTANTS

BASE/NEUTRAL EXTRACT ORGANICS

results in ppb

Acenaphthene	< 1	Diethylphthalate	< 10
Acenaphthylene	< 1	Dimethylphthalate	< 1
Anthracene	< 1	Di-n-octylphthalate	< 1
Benzo (a) anthracene	< 1	Dibutylphthalate	< 1
Benzo (b) fluoranthene	< 1	Isophorone	< 1
Benzo (k) fluoranthene	< 1	Benzidine	< 10
Benzo (a) pyrene	< 1	2,4-Dinitrotoluene	< 1
Benzo (g,h,i) perylene	< 1	2,6-Dinitrotoluene	< 1
Chrysene	< 1	1,2-Diphenylhydrazine	< 1
Dibenzo (a,h) anthracene	< 1	Nitrobenzene	< 1
Fluoranthene	< 1	N-Nitrosodimethylamine	< 1
Fluorene	< 1	N-Nitrosodi-n-Propylamine	< 1
Indeno (1,2,3-c,d) pyrene	< 1	N-Nitrosodiphenylamine	< 1
Naphthalene	< 1	2-Chloronaphthalene	< 1
Phenanthrene	< 1	1,3-Dichlorobenzene	< 1
Pyrene	< 1	1,4-Dichlorobenzene	< 1
Bis (2-chloroethyl) ether	< 1	1,2-Dichlorobenzene	< 1
Bis (2-chloroethoxy) methane	< 1	3,3-Dichlorobenzidine	< 10
Bis (2-ethylhexyl) phthalate	< 1	Hexachlorobenzene	< 1
Bis (2-chloroisopropyl) ether	< 1	Hexachlorobutadiene	< 1
4-Bromophenyl phenyl ether	< 1	Hexachloroethane	< 1
Butyl benzyl phthalate	< 1	Hexachlorocyclopentadiene	< 1
4-Chlorophenyl phenyl ether	< 1	2,3,7,8-Tetrachlorodibenzo-p-dioxin	< 1
		1,2,4-Trichlorobenzene	< 1

SEQUOIA ANALYTICAL LABORATORY

For Arthur G. Burton
Laboratory Director

sls

NOTE: Method 625 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 01/30/87
Date Received: 01/30/87
Date Extracted: 02/03/87
Date Reported: 02/18/87

Sample Number	Sample Description
7011660	Water, V-3

PRIORITY POLLUTANTS

ACID EXTRACT ORGANICS
results in ppb

4-Chloro-3-methylphenol	< 1
2-Chlorophenol	< 1
2,4-Dichlorophenol	< 1
2,4-Dimethylphenol	< 1
2,4-Dinitrophenol	< 1
2-Methyl-4,6-dinitrophenol	< 1
2-Nitrophenol	< 1
4-Nitrophenol	< 1
Pentachlorophenol	< 1
Phenol	< 1
2,4,6-Trichlorophenol	< 1

SEQUOIA ANALYTICAL LABORATORY

For Arthur G. Burton
Laboratory Director

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NOTE: Method 625 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 01/30/87
Date Received: 01/30/87
Date Reported: 02/18/87

Sample Number	Sample Description
7011660	Water, V3

ANALYSIS

	Detection Limit ppb	Sample Results ppb
Total Hydrocarbons	50	< 50
Benzene	0.5	< 0.5
Toluene	0.5	< 0.5
Xylenes	0.5	< 0.5

NOTE: Analysis was performed using EPA method 602.

SEQUOIA ANALYTICAL LABORATORY

For Arthur G. Burton
Laboratory Director

mpr

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 01/30/87
Date Received: 01/30/87
Date Extracted: 02/10/87
Date Reported: 02/18/87

Sample Number	Sample Description
7011660	Water, V-3

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein	<100	trans-1,2-Dichloroethene	4.0
Acrylonitrile	<100	1,2-Dichloropropane	< 0.5
Benzene	< 0.5	1,3-Dichloropropene	< 0.5
Bromomethane	< 0.5	Ethylbenzene	< 0.5
Bromodichloromethane	< 0.5	Methylene chloride	< 0.5
Bromoform	< 0.5	1,1,2,2-Tetrachloroethane	< 0.5
Carbon tetrachloride	< 0.5	Tetrachloroethene	< 0.5
Chlorobenzene	< 0.5	1,1,1-Trichloroethane	< 0.5
Chloroethane	< 0.5	1,1,2-Trichloroethane	< 0.5
2-Chloroethylvinyl ether	< 0.5	Trichloroethene	< 0.5
Chloroform	< 0.5	Toluene	< 0.5
Chloromethane	< 0.5	Vinyl chloride	< 0.5
Dibromochloromethane	< 0.5	1,2-Dichlorobenzene	< 0.5
1,1-Dichloroethane	< 0.5	1,3-Dichlorobenzene	< 0.5
1,2-Dichloroethane	< 0.5	1,4-Dichlorobenzene	< 0.5
1,1-Dichloroethene	< 0.2		

SEQUOIA ANALYTICAL LABORATORY

For Arthur G. Burton
Laboratory Director

sls

NOTE: Method 624 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 01/30/87
Date Received: 01/30/87
Date Extracted: 02/10/87
Date Reported: 02/18/87

Sample Number	Sample Description
7011660	Water, V-3

- Open Scan -
NON-PRIORITY POLLUTANTS
VOLATILE ORGANIC COMPOUNDS
results in ppb

Acetone	< 1
Ethanol	< 1
Methanol	< 1
Methyl Ethyl Ketone	< 1
Xylenes	< 1

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

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SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 01/30/87
Date Received: 01/30/87
Date Extracted: 02/10/87
Date Reported: 02/18/87

Sample Number	Sample Description
7011661	Travel Blank

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein	<100	trans-1,2-Dichloroethene	< 0.5
Acrylonitrile	<100	1,2-Dichloropropane	< 0.5
Benzene	< 0.5	1,3-Dichloropropene	< 0.5
Bromomethane	< 0.5	Ethylbenzene	< 0.5
Bromodichloromethane	< 0.5	Methylene chloride	< 0.5
Bromoform	< 0.5	1,1,2,2-Tetrachloroethane	< 0.5
Carbon tetrachloride	< 0.5	Tetrachloroethene	< 0.5
Chlorobenzene	< 0.5	1,1,1-Trichloroethane	< 0.5
Chloroethane	< 0.5	1,1,2-Trichloroethane	< 0.5
2-Chloroethylvinyl ether	< 0.5	Trichloroethene	< 0.5
Chloroform	< 0.5	Toluene	< 0.5
Chloromethane	< 0.5	Vinyl chloride	< 0.5
Dibromochloromethane	< 0.5	1,2-Dichlorobenzene	< 0.5
1,1-Dichloroethane	< 0.5	1,3-Dichlorobenzene	< 0.5
1,2-Dichloroethane	< 0.5	1,4-Dichlorobenzene	< 0.5
1,1-Dichloroethene	< 0.2		

SEQUOIA ANALYTICAL LABORATORY

for Arthur G. Burton
Laboratory Director

sls

NOTE: Method 624 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 04/02/87
Date Received: 04/02/87
Date Extracted: 04/15/87
Date Reported: 04/20/87
Project No. JCO-104H

Sample Number: 7040146

Sample Description: Soil, S-4

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein	-		trans-1,2-Dichloroethene	<	50
Acrylonitrile	-		1,2-Dichloropropane	<	50
Benzene	-		1,3-Dichloropropene	<	50
Bromomethane	<	50	Ethylbenzene	-	
Bromodichloromethane	<	50	Methylene chloride	880	
Bromoform	<	50	1,1,2,2-Tetrachloroethane	<	50
Carbon tetrachloride	<	50	Tetrachloroethene	<	50
Chlorobenzene	-		1,1,1-Trichloroethane	57	
Chloroethane	<	50	1,1,2-Trichloroethane	<	50
2-Chloroethylvinyl ether	<	50	Trichloroethene	<	50
Chloroform	<	50	Toluene	-	
Chloromethane	<	50	Vinyl chloride	<	50
Dibromochloromethane	<	50	1,2-Dichlorobenzene	<	50
1,1-Dichloroethane	<	50	1,3-Dichlorobenzene	<	50
1,2-Dichloroethane	<	50	1,4-Dichlorobenzene	<	50
1,1-Dichloroethene	<	50			

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

NOTE: Method 8010 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 04/02/87
Date Received: 04/02/87
Date Extracted: 04/15/87
Date Reported: 04/20/87
Project No. JCO-104H

Sample Number	Sample Description
7040147	Soil, S-5

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein		-	trans-1,2-Dichloroethene	<	50
Acrylonitrile		-	1,2-Dichloropropane	<	50
Benzene		-	1,3-Dichloropropene	<	50
Bromomethane	<	50	Ethylbenzene		-
Bromodichloromethane	<	50	Methylene chloride		3,500
Bromoform	<	50	1,1,2,2-Tetrachloroethane	<	50
Carbon tetrachloride	<	50	Tetrachloroethene	<	50
Chlorobenzene		-	1,1,1-Trichloroethane		340
Chloroethane	<	50	1,1,2-Trichloroethane	<	50
2-Chloroethylvinyl ether	<	50	Trichloroethene	<	50
Chloroform	<	50	Toluene		-
Chloromethane	<	50	Vinyl chloride	<	50
Dibromochloromethane	<	50	1,2-Dichlorobenzene	<	50
1,1-Dichloroethane		350	1,3-Dichlorobenzene	<	50
1,2-Dichloroethane	<	50	1,4-Dichlorobenzene	<	50
1,1-Dichloroethene	<	50			

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

mpr

NOTE: Method 8010 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 04/02/87
Date Received: 04/02/87
Date Extracted: 04/15/87
Date Reported: 04/20/87
Project No. JCO-104H

Sample Number	Sample Description
7040148	Soil, S-9

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein		-	trans-1,2-Dichloroethene	<	50
Acrylonitrile		-	1,2-Dichloropropane	<	50
Benzene		-	1,3-Dichloropropene	<	50
Bromomethane	<	50	Ethylbenzene		-
Bromodichloromethane	<	50	Methylene chloride		50
Bromoform	<	50	1,1,2,2-Tetrachloroethane	<	50
Carbon tetrachloride	<	50	Tetrachloroethene	<	50
Chlorobenzene		-	1,1,1-Trichloroethane		50
Chloroethane	<	50	1,1,2-Trichloroethane	<	50
2-Chloroethylvinyl ether	<	50	Trichloroethene	<	50
Chloroform	<	50	Toluene		-
Chloromethane	<	50	Vinyl chloride	<	50
Dibromochloromethane	<	50	1,2-Dichlorobenzene	<	50
1,1-Dichloroethane	<	50	1,3-Dichlorobenzene	<	50
1,2-Dichloroethane	<	50	1,4-Dichlorobenzene	<	50
1,1-Dichloroethene	<	50			

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

mpr

NOTE: Method 8010 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 04/03/87
Date Received: 04/03/87
Date Extracted: 04/16/87
Date Reported: 04/20/87
Project No. JCO-104H

Sample Number	Sample Description
7040213	Water, V-4

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein		-	trans-1,2-Dichloroethene	<	10
Acrylonitrile		-	1,2-Dichloropropane	<	10
Benzene		-	1,3-Dichloropropene	<	10
Bromomethane	<	10	Ethylbenzene		-
Bromodichloromethane	<	10	Methylene chloride		1,400
Bromoform	<	10	1,1,2,2-Tetrachloroethane	<	10
Carbon tetrachloride	<	10	Tetrachloroethene	<	10
Chlorobenzene		-	1,1,1-Trichloroethane		1,300
Chloroethane		160	1,1,2-Trichloroethane	<	10
2-Chloroethylvinyl ether	<	10	Trichloroethene	<	10
Chloroform	<	10	Toluene		-
Chloromethane	<	10	Vinyl chloride		11
Dibromochloromethane	<	10	1,2-Dichlorobenzene	<	10
1,1-Dichloroethane		2,200	1,3-Dichlorobenzene	<	10
1,2-Dichloroethane	<	10	1,4-Dichlorobenzene	<	10
1,1-Dichloroethene		170			

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 601 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/20/87
Date Received: 05/20/87
Date Extracted: 05/21/87
Date Reported: 05/22/87
Job No. JCO-104H

Sample Number	Sample Description
7051303	Water, V-4

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS

results in ppb

Acrolein		-	trans-1,2-Dichloroethene	<	5
Acrylonitrile		-	1,2-Dichloropropane	<	5
Benzene		-	1,3-Dichloropropene	<	5
Bromomethane	<	5	Ethylbenzene		-
Bromodichloromethane	<	5	Methylene chloride		490
Bromoform	<	5	1,1,2,2-Tetrachloroethane	<	5
Carbon tetrachloride	<	5	Tetrachloroethene	<	5
Chlorobenzene		-	1,1,1-Trichloroethane		390
Chloroethane		12	1,1,2-Trichloroethane	<	5
2-Chloroethylvinyl ether	<	5	Trichloroethene	<	5
Chloroform	<	5	Toluene		-
Chloromethane	<	5	Vinyl chloride	<	5
Dibromochloromethane	<	5	1,2-Dichlorobenzene	<	5
1,1-Dichloroethane		1,200	1,3-Dichlorobenzene	<	5
1,2-Dichloroethane	<	5	1,4-Dichlorobenzene	<	5
1,1-Dichloroethene		140			

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 601 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/05/87
Date Received: 05/06/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description	Detection Limit	Total Hydrocarbons as Kerosene
	Water	ppm	ppm
7050221	V-5	1	< 1.0
7050222	V-6	1	< 1.0
7050223	V-7	1	< 1.0
7050224	Travel Blank	1	< 1.0

NOTE: Analysis was performed using EPA methods 3510 and 8015.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

mpr

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/05/87
Date Received: 05/06/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description	Detection Limit	Total Hydrocarbons as Laquer Thinner
	Water	ppm	ppm
7050221	V-5	1	< 1.0
7050222	V-6	1	< 1.0
7050223	V-7	1	< 1.0

NOTE: Analysis was performed using EPA methods 3510 and 8015.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

mpr

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/05/87
Date Received: 05/06/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description	Detection Limit ppm	Total Hydrocarbons as Paint Thinner ppm
7050221	V-5	1	< 1.0
7050222	V-6	1	< 1.0
7050223	V-7	1	< 1.0

NOTE: Analysis was performed using EPA methods 3510 and 8015.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

mpr

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/06/87
Date Received: 05/06/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description Water	Alcohols* ppm	Acetone ppm
7050221	V-5	< 1.0	< 1.0
7050222	V-6	< 1.0	< 1.0
7050223	V-7	< 1.0	< 1.0

*- Alcohols: Methanol, Ethanol, Iso-propanol.

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

mpr

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/06/87
Date Received: 05/06/87
Date Extracted: 05/11/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description
7050221	Water, V-5

PRIORITY POLLUTANTS

PHENOLIC COMPOUNDS
results in ppb

4-Chloro-3-methylphenol	< 100
2-Chlorophenol	< 100
2,4-Dichlorophenol	< 100
2,4-Dimethylphenol	< 100
2,4-Dinitrophenol	< 100
2-Methyl-4,6-dinitrophenol	< 100
2-Nitrophenol	< 100
4-Nitrophenol	< 100
Pentachlorophenol	< 100
Phenol	< 100
2,4,6-Trichlorophenol	< 100

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 604 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/06/87
Date Received: 05/06/87
Date Extracted: 05/11/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description
7050222	Water, V-6

PRIORITY POLLUTANTS

PHENOLIC COMPOUNDS
results in ppb

4-Chloro-3-methylphenol	< 100
2-Chlorophenol	< 100
2,4-Dichlorophenol	< 100
2,4-Dimethylphenol	< 100
2,4-Dinitrophenol	< 100
2-Methyl-4,6-dinitrophenol	< 100
2-Nitrophenol	< 100
4-Nitrophenol	< 100
Pentachlorophenol	< 100
Phenol	< 100
2,4,6-Trichlorophenol	< 100

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 604 of the EPA was used for this analysis.

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/06/87
Date Received: 05/06/87
Date Extracted: 05/11/87
Date Reported: 05/22/87
Project No. JCO-104H

Sample Number	Sample Description
7050223	Water, V-7

PRIORITY POLLUTANTS

PHENOLIC COMPOUNDS
results in ppb

4-Chloro-3-methylphenol	< 100
2-Chlorophenol	< 100
2,4-Dichlorophenol	< 100
2,4-Dimethylphenol	< 100
2,4-Dinitrophenol	< 100
2-Methyl-4,6-dinitrophenol	< 100
2-Nitrophenol	< 100
4-Nitrophenol	< 100
Pentachlorophenol	< 100
Phenol	< 100
2,4,6-Trichlorophenol	< 100

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 604 of the EPA was used for this analysis.

ANATEC LABORATORIES INC.

435 Tesconi Circle • Santa Rosa, California 95401 • 707-526-7200

Mr. Bob Breynaert
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

May 29, 1987
ANATEC Log No: **9242** (1-4)
Series No: 380/004
Client Ref: (V) Breynaert

Subject: Analysis of 4 Water Samples Identified as "MOUNTAIN VIEW" Received on May 7, 1987.

Dear Mr. Breynaert:

Analysis of the samples referenced above has been completed. This report is written in confirmation of results transmitted verbally on May 21, 1987.

Four samples were each received in two 40-milliliter glass vials sealed with Teflon septa and screw caps, except "FIELD BLANK, 5/5" which was received in one 40-milliliter vial. All samples, except one vial for "V-5, JCO-104H" which had headspace, were received intact, legibly labelled and cool by virtue of refrigerated transport. Samples were delivered under documented chain-of-custody.

On completion of log-in procedures, the samples were placed in secured storage where they were maintained at 4 °C until analysis commenced.

The samples were analyzed to measure contents of purgeable priority pollutants, methyl ethyl ketone and xylene by gas chromatography/mass spectroscopy in accord with U.S. EPA Method 624 ("Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act," U.S. EPA, 40 CFR 136, 1984.) Five-milliliter portions of sample were purged with reagent helium in a closed system. Volatile organic compounds sparged from the sample were swept from the purging vessel onto a solid sorbent "trap." Compounds were later thermally desorbed onto the analytical column of a gas crhomatograph. The column effected separation of the various compounds which subsequently entered the mass spectrometer. Compounds were fragmented by electron impact and the relative abundancies of various ionized fragments detected and analyzed by the mass spectrometer and associated data system.

Analysis of samples was accompanied by various quality control procedures. These included preparation and analysis of method blanks and standards, and replicate and analyte-fortified ("spiked") sample portions. Results of quality control procedures are available on request but are not included in this report.

Results of analysis are presented in Table 1. Please feel welcome to contact us should you have questions regarding procedures or results.

Submitted by:

David Hirano
Project Chemist

Approved by:

Greg Anderson, Director
Analytical Laboratories

/hs

TABLE 1. ANALYTICAL RESULTS FOR "MOUNTAIN VIEW" SAMPLES RECEIVED MAY 7, 1987 - PURGEABLE PRIORITY POLLUTANTS

		Site Name, Lab No. & Results (ug/L)[1]			
Analyte	MDL[2] (ug/L)	V-5 JCO-104H 5/5 1300 (9242-1)	V-6 JCO-104H 5/5 1450 (9242-2)	V-7 JCO-104H 5/5 1630 (9242-3)	FIELD BLANK 5/5 (9242-4)
Chloromethane	5.0	ND[3]	ND	ND	ND
Bromomethane	5.0	ND	ND	ND	ND
Vinyl chloride	5.0	ND	ND	ND	ND
Chloroethane	5.0	ND	ND	ND	ND
Methylene chloride	2.8	ND	ND	ND	ND
Trichlorofluoromethane	5.0	ND	ND	ND	ND
1,1-Dichloroethene	2.8	ND	ND	7.7	ND
1,1-Dichloroethane	4.7	ND	ND	55	ND
trans-1,2-Dichloroethene	1.6	ND	ND	ND	ND
Chloroform	1.6	ND	ND	ND	ND
1,2-Dichloroethane	2.8	ND	ND	ND	ND
1,1,1-Trichloroethane	3.8	ND	ND	64	ND
Carbon tetrachloride	2.8	ND	ND	5.0	ND
Bromodichloromethane	2.2	ND	ND	ND	ND
1,2-Dichloropropane	6.0	ND	ND	ND	ND
trans-1,3-Dichloropropene	5.0	ND	ND	ND	ND
Trichloroethene	1.9	ND	ND	ND	ND
Benzene	4.4	ND	ND	ND	ND
Dibromochloromethane	3.1	ND	ND	ND	ND
1,1,2-Trichloroethane	5.0	ND	ND	ND	ND
cis-1,3-Dichloropropene	5.0	ND	ND	ND	ND
2-Chloroethylvinyl ether	7.0	ND	ND	ND	ND
Bromoform	4.7	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	6.9	ND	ND	ND	ND
Tetrachloroethene	4.1	ND	ND	ND	ND
Toluene	6.0	ND	ND	ND	ND
Chlorobenzene	6.0	ND	ND	ND	ND
Ethyl benzene	7.2	ND	ND	ND	ND
1,3-Dichlorobenzene	6.0	ND	ND	ND	ND
1,2-Dichlorobenzene	6.0	ND	ND	ND	ND
1,4-Dichlorobenzene	6.0	ND	ND	ND	ND
Methyl ethyl ketone	5.0	ND	ND	ND	ND
Xylene	5.0	ND	ND	ND	ND

[1]Data expressed in units of micrograms analyte per liter sample.
[2]MDL--Method detection limit.
[3]ND--Not detected at the method detection limit.

TABLE 2. SUMMARIZED RESULTS FOR ANALYSIS BY EPA METHOD 624

Analyte	MDL[2] (ug/L)	Descriptor, Lab No. & Results (ug/L)[1] JCO-104H, I-1 5/15/87 1210 (9317-2)
Chloromethane	5.0	ND
Bromomethane	5.0	ND
Vinyl chloride	5.0	ND
Chloroethane	5.0	ND
Methylene chloride	2.8	ND
Trichlorofluoromethane	5.0	ND
1,1-Dichloroethene	2.8	ND
1,1-Dichloroethane	4.7	11
trans-1,2-Dichloroethene	1.6	ND
Chloroform	1.6	ND
1,2-Dichloroethane	2.8	ND
1,1,1-Trichloroethane	3.8	ND
Carbon tetrachloride	2.8	ND
Bromodichloromethane	2.2	ND
1,2-Dichloropropane	6.0	ND
trans-1,3-Dichloropropene	5.0	ND
Trichloroethene	1.9	ND
Benzene	4.4	ND
Dibromochloromethane	3.1	ND
1,1,2-Trichloroethane	5.0	ND
cis-1,3-Dichloropropene	5.0	ND
2-Chloroethylvinyl ether	7.0	ND
Bromoform	4.7	ND
1,1,2,2-Tetrachloroethane	6.9	ND
Tetrachloroethene	4.1	ND
Toluene	6.0	ND
Chlorobenzene	6.0	ND
Ethyl benzene	7.2	ND
1,3-Dichlorobenzene	6.0	ND
1,2-Dichlorobenzene	6.0	ND
1,4-Dichlorobenzene	6.0	ND
Methyl ethyl ketone	10	ND
Xylenes	10	ND
Tetrahydrofuran	10	ND

[1]Data expressed in units of micrograms analyte per liter sample.
[2]MDL--Method detection limit.
[3]ND--Not detected at the method detection limit.

APPENDIX C

Wahler Associates

WA Project Number: _____

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) _____

Address _____

_____

Phone ( ) _____

Report to (1) Bob Breymaert

Collector Bob Breymaert

Affiliation Wahler Associates

Address 1023 Corporation Way

Palo Alto CA 94303

Phone (415) 968 6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				
		/ /				See Attached
		/ /				
		/ /				Analysis Request
		/ /				Sheet
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Ti
1.		/ /			/ /	
					/ /	
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collec and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of thi form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

Sequoia Date Sample Shipped _____

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
	H_2O	2 VOA glass vials	EPA 601
Travel Blank	H_2O	1 VOA glass vial	EPA 601

Comments turnaround

Contact Person Ed Braymer (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cocanower

Wahler Associates

WA Project Number: JCO-1044

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Collector Bob Breymaert

Address _____

Affiliation Wahler Associates

_____

Address 1023 Corporation Way

Phone ( )

Palo Alto CA 94303

Report to (1) Bob Breymaert

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached analysis
		/ /				request sheet
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	2 20186	2:10pm	[signature] SFLI	2/20/86	2:13
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
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(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

Scientific Environmental Date Sample Shipped 2/20/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
JCO-104H, V-2	H_2O	2 VOA glass vials	EPA 601
F.BLANK	H_2O	1 VOA glass vial	EPA 601

Comments Written Turnaround no later than Wednesday 2/25/87 !!! ooo
as negotiated by Dan Thomas and Shui Fong on Friday 2/20/87

Contact Person Bob Breyndert (415)
Name Telephone

Lab Project Manager (if known) _____

Wahler Associates

WA Project Number: JCO-1041.1

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Collector Bob Breynaert

Address

Affiliation WAHLER ASSOC.

Address 1023 Cornation Way

Phone ( )

Palo Alto, CA 94303

Report to (1) Bob Breynaert

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See attached analysis
		/ /				request sheet
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	3 12 87	10AM	[signature] Mark A. Valentini	3-12-87	10AM
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

Sequoia Date Sample Shipped 3/2/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
	JCO-104H V2	H_2O	2 VOA Glass Vial	EPA 601
B-4	JCO-104H [redacted]	H_2O	1 VOA Glass Vial	EPA 601

Comments Written turnaround no later than MONDAY MARCH 16, 1987

Contact Person Bob Braygart (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cocgnour

Wahler Associates

WA Project Number: JCO-104H

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) _____

Address _____

_____

Phone ( )

Report to (1) Joel Lindsay

Collector Joel Lindsay

Affiliation Wahler Associates

Address 1023 Corporation Way
Palo Alto, CA 94303

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				
		/ /				See Attached
		/ /				
		/ /				Analysis Request
		/ /				
		/ /				Forms
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	T
1.	Joel Lindsay	3/19/87	12:30 pm.	D. Burt	3/19/87	1
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the colle and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of th form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

Sequoia Date Sample Shipped 3/19/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
V-2	H_2O	2 VOA vials	EPA 601
Travel Blank	H_2O	1 VOA vial	EPA 601

Comments 24 HOUR TURNAROUND

Contact Person Joel Lindsay (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cocanour

Wahler Associates

WA Project Number: JCO-104.H

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Address _____

_____

Phone ( )

Report to (1) _____

Collector Bob Breynaert

Affiliation Wahler Associates

Address 1023 Corporation Way

Palo Alto, CA, 94303

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached
		/ /				analysis request form
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	5 16 87	1110	[signature]	5 16 87	5:0[illegible]
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of this form.

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ANALYSIS REQUEST FORM

SEQUOIA Date Sample Shipped 5/6/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
V-2	H_2O	2	EPA-601
TRAVEL BLANK	H_2O	1	Total Hydrocarbons as Kerosene
V-5, V-6, V-7	H_2O	2 from each well	EPA-604 (Phenols)
V-5, V-6, V-7	H_2O	2 from each well	Methanol
V-5, V-6, V-7	H_2O	2 from each well	Total Hydrocarbons as Kerosene
V-5, V-6, V-7	H_2O	2 from each well	Total Hydrocarbons as Lacquer Thinner
V-5, V-6, V-7	H_2O	2 from each well	Total Hydrocarbons as Paint Thinner
			EPA 524

Comments Vials of (1) Paint Thinner, (2) Lacquer Thinner and (3) Kerosene are enclosed with samples to use as standards

WRITTEN TURNAROUND DEFINATELY NO LATER THAN WEDNESDAY MAY 20, 1987

Contact Person Bob Breynaert (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cocanour

PS. For Phenols analyses, use left over water from other scans to obtain maximum volume for each well! In other words, use do the phenols analyses last and use

Wahler Associates

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Collector Bob Breynaert

Address ______________

Affiliation WAHLER ASSOCIATE

Address 1023 Corporation Way
Palo Alto 94303

Phone ( )

Report to (1) Bob Breynaert

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached
		/ /				Analysis Request Sheet
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	1/30/87	5PM	[signature] SAL	1/30/87	5[illegible]
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.
(2) e.g. water, sludge, soil, etc.
(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
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(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

SEQUOIA Date Sample Shipped 1/30/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
(1)	V-3	H_2O	1 1ℓ Glass Jar	GC/MS Organ Scan (625
(2)	V-3	H_2O	1 VOA Glass Vial	EPA 624 plus. Look for. Acetone, Ethanol, MEK, Methanol Xylenes.
(3)	V-3	H_2O	1 VOA Glass Vial	TOTAL Hydrocarbons, GCS Look for Kerosene, Lacquer Thinner, Paint Thinner. ⇒ samples of Lacquer Thinner and paint Thinner enclosed also.
(4)	FIELD BLANK	H_2O	1 VOA Glass Vial	EPA 624 plus look for Acetone, Ethanol, MEK, Methanol, Xylenes.

Comments Turnaround by February 13, 1987 (2 weeks)

Contact Person Bob Bregaccrt (415) 968 6250
Name Telephone

Lab Project Manager (if known) Scott Cocanour

Wahler Associates

WA Project Number: _____

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Collector Bob Bregmaert

Address _____

Affiliation WAHLER ASSOCIATES

Address 1023 Corporation Way

Phone ( )

Palo Alto, CA 94303

Report to (1) _____

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached Analysis
		/ /				request sheet
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	4/12/87	6:30pm	Kyle Anderson	4/2/87	8:30
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collecto and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

SEQUOIA Date Sample Shipped 4/2/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
S-4	Soil	Brass tube	EPA 8010
S-5	Soil	Brass Tube	EPA 8010
S-9	Soil	Brass Tube	EPA 8010

Comments Written turnaround NO LATER THAN THURSDAY APRIL 16, 1987

Contact Person Bob Braynaert (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cocanour

Wahler Associates

WA Project Number: JCO-104H

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Collector RG. Braynaert

Address _____

Affiliation WAHLER ASSOCIATES

Address 1023 Corporation Way
Palo Alto, CA 94303

Phone ( )

Report to (1) Bob Breynaert

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See attached
		/ /				analysis request form
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	4/13/87	1730	B. Vuyn	4/13/87	5:35
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.
(2) e.g. water, sludge, soil, etc.
(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

SEQUOIA Date Sample Shipped 4/3/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
V-4	H_2O	(2) VOA vials	EPA 601

Comments Written turnaround by Friday April 17, 1987.

Contact Person Bob Braynaert (415) 968-6250
Name Telephone

Lab Project Manager (if known) SCOTT COCANOUR

Wahler Associates

WA Project Number: J70-104H

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) Mtn View. Collector Bob Braynaert

Address _____ Affiliation Wahler Associates

_____ Address 1023 Corporation Way

Phone ( ) _____ Palo Alto CA 94303

Report to (1) Bob Braynaert Phone 415-968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See attached Analysis
		/ /				Request forms!
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	5/20/87		[signature]	5/20/87	1:41
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
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(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

SEQUOIA Date Sample Shipped 5/20/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
JCO-104 H, V-4	H_2O	(2) VOA	EPA-601

Comments 24 HOUR TURNAROUND!

Contact Person Bob Breymaert (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cocanour.

Wahler Associates

WA Project Number: _____

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) Manton Bay, CA

Collector Bob Braynaert

Address _____

Affiliation Wahler Associates

Address 1023 Corporation way

Palo Alto CA 94303

Phone ( )

Report to (1) Bob Braynaert

Phone 415-968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See attached
		/ /				analysis request sheet
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

9242

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	5/6/87	1050	[signature]	5/6/87	1050
2.	VIA NCS	/ /		[signature]	5/7/87	0800
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of this form.

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ANALYSIS REQUEST FORM

Amtec Date Sample Shipped 5/6/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
U-5	H_2O	2	EPA 624+MEK+
U-6	"	"	" Xylenes
U-7	"	"	"
Field Blank	"	1	EPA 624+MEK+Xylenes

9242

Comments Turnaround by 5/13/87

Contact Person Bob Braynard (415) 968-6250
Name Telephone

Lab Project Manager (if known) _____

Wahler Associates

WA Project Number: JCO-1041A

Page 1 of 2

Field Sample Chain of Custody Record

Source of Sample(s) Mtn View, CA

Collector Bob Breymaert

Address _____

Affiliation Wahler Assoc.

Address 1023 Corporation Way
Palo Alto, CA 94303

Phone ( )

Report to (1) Bob Breymaert

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached
		/ /				Analysis Request form
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	5/15/87	5:00	[signature]	5/15/87	5:00
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collect and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

Sequoia Date Sample Shipped 5/15/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
(1)	JCO-104H; I-2	H_2O	(2) 1Q bottle	EPA-604 - Phenols
(2)	JCO-104H; I-2	H_2O	(2) VOA	Methanol
(3)	JCO-104H; I-2	H_2O	(2) VOA	total Hydrocarbons as Kerosene
(4)	JCO-104H; I-2	H_2O	(2) VOA	total Hydrocarbons as Lacquer Thinner
(5)	JCO-104H; I-2	H_2O	(2) VOA	total Hydrocarbons as Paint Thinner
~~(6)~~	~~JCO-104H; I-2~~			

Comments SCOTT Cocanour has vials of Paint Thinner, Lacquer Thinner and Kerosene. To be used as Standards.
WRITTEN TURNAROUND ABSOLUTELY NO LATER THAN FRIDAY MAY 29, 19

Contact Person Bob Breynaert (415) 968-6250
Name Telephone

Lab Project Manager (if known) SCOTT Cocanour

Wahler Associates

9317

WA Project Number: JCO-104H/EVO-10

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Collector Bob Breynaert

Address _____

Affiliation Wahler Associates

Address 1023 Corporation Way
Palo Alto CA 94043

Phone ( )

Report to (1) _____

Phone (415) - 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached Analysis
		/ /				Request Form
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	[signature]	5/15/87	0154	[signature] VINOD	05/15/87	342 PM
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collector and given to the Laboratory when samples are delivered.
(2) e.g. water, sludge, soil, etc.
(3) If any samples are not intact at time of transfer, please describe on the back of this form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

Anatec Date Sample Shipped 5/15/87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
(1)	JCO-104H, I-1	H_2O	(2) VOA	(OpenScan) EPA-624 including MEK and Xylenes
(2)	EVO-101H, WA-1	H_2O	(2) VOA	EPA-624 openscan including Tetrahydrofuran(
(3)	EVO-101H, WA-1	H_2O	(2) 1l glass bottles	EPA-625 Openscan - incl 2-Methoxy-Ethanol
(4)	EVO-101H, WA-1	H_2O	(2) 1l glass bottles	EPA 608 - Pesticides + PC
(5)	EVO-101H, WA-1	H_2O	(2) 500mL Containers PH<2	~~CAM~~ Metals (Total)
(6)	EVO-101H, WA-1	H_2O	(2) 250mL Containers	Hexavalent chromiu

Comments Please Remember TO Look For: MEK and Xylenes in JCO-104H, I-1; THF in EVO-101H, WA-1, EPA-624; and 2-Methoxy-Ethanol in the EPA 625 analysis WRITTEN TURNAROUND NO LATER THAN FRIDAY MAY 29, 198

Contact Person Bob Breymaert (415) 9686250
Name Telephone

Lab Project Manager (if known) Greg Andersen

APPENDIX D

WATER SAMPLING PARAMETERS

DATE: 12/17/86 SAMPLERS: RGB

LOCATION: JASCO 3BV:

SAMPLE ID: JCO-101A-U-2

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l.	Q GPM	BOH
22.63	1	220	16.2	6.39	0.29	1270	0.6		
	3	230	16.2	6.15	0.21	1415	0.3		
	5	235	16.1	6.32	0.13	1590	0.6		
	7	240	16.4	6.29	0.16	1610	1.2		
	~~7~~	~~[illegible]~~	~~[illegible]~~	~~6.35~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~		
	9	245	16.[illegible]	6.31	0.14	1580	0.8		
	10	250	16.8	6.35	0.11	1620	1.0		

TIME SAMPLED:

COMMENTS:

SAMPLES TAKEN	
	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
X	EPA 601
	EPA 602

Wahler Associates

WATER SAMPLING PARAMETERS

DATE: 5/5/07 SAMPLERS: RSC

LOCATION: JASCO 3BV:

SAMPLE ID: V-2

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l	Q GPM	BOH
	2	200	20.6	6.37	+008	1500	2.4		
	4	205	19.6	6.42	004	1500	1.7		
	6	210	19.7	6.42	004	1480	2.5		
	8	215	19.8	6.45	003	1450	2.6		
	10	220	20.5	6.46	000	1480	2.6		

TIME SAMPLED: 220

COMMENTS:

SAMPLES TAKEN	
	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
X	EPA 601
	EPA 602

Wahler Associates

WATER SAMPLING PARAMETERS

DATE: 1/30/87 SAMPLERS: RGB

LOCATION: JASCO 3BV:

SAMPLE ID: V-3

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l	Q GPM	BOH
22.82	5	1040	18.4	6.14	024	1510	3.3		
	10	1049	18.9	6.14	022	1680	2.4		
	15	1059	18.6	6.48	005	1640	2.6		
	20	11:18	17.6	6.51	+003	1600	5.3		
	25	1145	19.4	6.46	+003	1580	6.7		
	30	1209	19.3	6.62	+003	3050	6.5		
	37.5	1236	18.3	6.60	+000	2500	6.4		
24.61		1:08							

0 gals

TIME SAMPLED: 12:45 PM

COMMENTS: 1ST 10 gals very SILTY = LOTS of sand possibly sand pack material. after 25 gals it became much clearer & less sand, last 7.5 gals ~~more~~ clear

Sampled Taken on 1/30 @ 1245 PM

SAMPLES TAKEN	
X	EPA 624
X	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
	EPA 601
	EPA 602
X	THC

Wahler Associates

WATER SAMPLING PARAMETERS

DATE: 4/3/87 SAMPLERS: RGB

LOCATION: JASCO 3BV:

SAMPLE ID: V-4

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l	Q GPM	BOH
	300	1040	18.6	6.37	006		2.4	10	
	320	1045	18.4	6.38	005		3.0	~10	
	340	1048	18.7	6.41	010		3.2	~10	
	360	1054	18.3	6.43	007		2.9	~10	
	380	1057	18.4	6.39	006		3.1	10	
	400	1102	17.9	6.42	003		2.8	10	

TIME SAMPLED:

COMMENTS:

SAMPLES TAKEN	
	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
X	EPA 601
	EPA 602

Wahler Associates

WATER SAMPLING PARAMETERS

DATE: 5/5/87

SAMPLERS: RGB

LOCATION: JASCO

3BV:

SAMPLE ID: U-5

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l	Q GPM	BOH
25.34									
	2	1230	20.7	7.18	-034	1100	2.4		
	4	1240	19.9	6.89	-018	1150	2.3		
	6	1245	19.5	6.86	-017	1190	2.4		
	8	1250	19.6	6.87	-018	700	3.6		
	10	1255	19.6	6.86	-017	1150	3.4		

TIME SAMPLED: 1:00PM

COMMENTS:

SAMPLES TAKEN	
X	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
	EPA 601
	EPA 602
X	604
X	THC

X Methanol

Wahler Associates

WATER SAMPLING PARAMETERS

DATE: 5/5/87

SAMPLERS: RGB

LOCATION: JASCO

3BV:

SAMPLE ID: V-6

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l	Q GPM	BOH
	2	250	20.3	6.85	-016	650	2.5		
	4	3:00	21.6	6.89	-019	1100	4.7		
	6	310	21.6	6.86	-017	640	4.2		
	8	320	20.9	6.82	-015	150	2.8		
	105	330	20.7	6:81	-017	1160	2.4		

TIME SAMPLED: 335

COMMENTS:

SAMPLES TAKEN	
	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
	EPA 601
	EPA 602

Wahler Associates

WATER SAMPLING PARAMETERS

DATE: 5/5/87 SAMPLERS: RGG

LOCATION: JASCO 3BV:

SAMPLE ID: V-7

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l	Q GPM	BOH
	2	410	21.2	6.69	-011	2200	2.7		
	4	415	21.4	6.82	-017	2050	3.4		
	6	422	21.8	6.81	-016	2007	3.5		
	8	~~428~~	21.7	6.79	-018	1995	3.3		
	10	430	21.9	6.84	-014	1975	3.4		

TIME SAMPLED:

COMMENTS:

SAMPLES TAKEN	
X	EPA 624
	EPA 625
X	~~EPA 608~~ 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
	EPA 601
	EPA 602
X	TOC

Wahler Associates

WATER SAMPLING PARAMETERS

DATE: 5/13/87

SAMPLERS: RGB

LOCATION: JASCO

38V:

SAMPLE ID: I-1

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	mV	Eh	DO mg/l	Q GPM	BOH
2455	5	1110	21.3	7.09	008	1010			
	10	1120	20.7	7.21	012	1010			
	15	1135	20.0	7.29	009	980			
	20	1150	20.1	7.18	011	1005			

TIME SAMPLED:

COMMENTS:

SAMPLES TAKEN	
	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
	EPA 601
	EPA 602

Wahler Associates

APPENDIX E

DRILLING, SEALING, SAMPLING, AND SAFETY PROTOCOL

DRILLING

1. Wahler Associates will obtain all necessary permits for the installation of the proposed ground water monitoring wells.

2. Borings will be drilled using appropriate methods after consideration of site geologic and geotechnical conditions and accepted practice.

3. All augers, drilling rods and tools used during drilling will be thoroughly steam-cleaned. The augers, drilling rods and tools will be stored before use in a clean area.

4. A method blank of the cleaned rods and/or augers will be taken prior to use to detect contamination from any previous drilling site.

5. All borings will be advanced according to guidelines provided by the agency under which the drilling operations are being conducted.

6. The subsurface stratigraphy and aquifer geometry will be determined using cuttings from the drilling operations and by sampling undisturbed soils using a California Modified or other appropriate sampler. Logs will be maintained of all borings with details of materials encountered.

7. Depths of all borings will be determined in the field. Ground water or vadose monitoring wells will be constructed in each boring, as appropriate.

SEALING

8. Bentonite or neat cement seals will be tremied to the bottom of all holes which have penetrated clay layers, to protect the integrity of all lower aquifers.

9. All aquifers encountered will be properly isolated using bentonite or neat cement seals.

10. At no time will slotting or sand packs extend through 5-foot thick or thicker clay layers to connect adjacent aquifers unless previously agreed to by local and State agencies.

11. All wells will be sealed at the surface with at least 5 feet of neat cement. A protective locking device will be installed at the surface over the well casing.

12. All surface seals will be inspected by the appropriate agencies as needed.

13. All well casings will be protected against surface infiltration.

SAMPLING - General

14. Any materials supplied by the client will reduce the cost of our work. These may include tap water, 55-gallon sealed drums, and DI-water. Arrangements will be made before the start of the project.

15. Chemical sampling procedures and sample storage will be conducted under the direction of our consulting laboratory or a consulting analytical chemist.

16. All equipment used during the sampling process will be thoroughly steam-cleaned prior to its use.

17. All samples will be stored in an ice chest and packed in blue ice or ice.

18. All samples will be delivered to the consulting laboratory as soon as possible after collection.

19. All sample containers will be opened only by the consulting laboratory which performs the chemical testing.

SOIL SAMPLES

20. Soil samples will be attempted at 5-foot intervals or more frequently as determined in the field.

21. Sample container cleaning blanks may be taken of the steam cleaned brass liners for quality control purposes at the rate of one per boring.

22. All soil sampling equipment will be disassembled and thoroughly steam-cleaned prior to each usage.

23. The ends of all soil sample liners will be covered with aluminum foil and an air-tight cap which will then be wrapped with aluminized tape and properly labeled. All soil samples will be immediately stored in an ice chest and packed with ice or blue ice.

24. All excess soils will be placed in a 55-gallon drum for proper disposal.

25. The center of each soil liner will be extracted at the consulting laboratory for appropriate analysis.

WATER SAMPLES

26. At least 3 to 5 well bore volumes will be purged from each well using a bladder or centrifugal pump prior to sampling for volatile organic compounds. During evacuation, pH, conductivity and temperature will be monitored and recorded. All samples will be retrieved with a steam-cleaned teflon bailer. Cleaning blanks of the teflon bailer will be taken between each well to be sampled if the client so desires.

27. Samples will not be taken until the pH, conductivity and temperature measurements have stabilized during well purging.

28. All sampling equipment, including gloves and tape measures will be properly decontaminated between each well.

29. All samples will be placed in the appropriate cleaned containers provided by the project laboratory. The type of container necessary is contingent upon the analysis needed.

SAMPLE RECORDS AND CUSTODY

30. Records will be maintained for all samples collected by Wahler Associates.

31. A positive chain of custody record will be maintained by Wahler Associates for future reference.

32. All records will be maintained under strict confidence by Wahler Associates and will be released only by written authorization of the client.

SAFETY PROTOCOL

GENERAL

33. Wahler Associates will provide safety equipment needed at the project in accordance with chemical types disclosed by the client.

34. At no time will Wahler Associates take responsibility for unusual safety equipment needed for unknown hazardous materials encountered at the site.

35. All clients shall be responsible for disclosure of all hazardous materials encountered in normal work by Wahler Associates at their project site.

36. Wahler Associates drilling personnel will follow our drilling safety procedures if the odor of gas, diesel, or solvents are detected while drilling near all storage facilities.

37. Wahler Associates will provide a "Gastechtor" gas detector, which measures the percentage of explosive gases versus the percentage oxygen in the hollow-stem augers used for drilling, when drilling near flammable hazardous materials.

38. Wahler Associates will provide nitrogen to purge the hollow-stem augers of explosive vapors and oxygen. During purging, hazardous vapors will be periodically monitored by the "Gastechtor".

39. At no time will metal objects such as hammers or sampling devices be lowered into the hollow-stem augers before they are purged of explosive vapors, if detected.

40. All drilling cuttings will be stored properly for safe disposal.

41. The local fire department and client will be notified immediately if explosive vapors are detected.

42. No smoking shall be allowed within 100 feet of detected flammable vapors.

PUMPING TEST

43. Horizontal and vertical control shall be established by a licensed surveyor for the pumping well and all observation wells prior to the commencement of the pumping, to provide a reliable basis for ground water level measurements and pumping test calculations.

44. The response of all wells utilized for the pumping test will be tested by injecting a known volume of organic free water into each well or by using a slug of known volume, and measuring the subsequent decline of water level. This will ensure that they function suitably as observation wells for the purposes of the test.

45. The depths of the static water levels will be measured in each well utilized prior to commencement of the test, and at intervals deemed appropriate for the site to be tested. All data, including barometric pressure, will be recorded on aquifer test forms, and graphs of drawdown or recovery vs. time will be maintained (on log-log paper) in the field for each observation well. Water levels will be measured in the other wells, as necessary, several times during the test.

46. After pumping has been shut off, a period of recovery will be monitored in the wells, with the amount of time to be determined in the field.

47. The pumping well must be equipped with reliable power, pump, and discharge-control equipment. The pumping rate must be constant. Output from electrically driven equipment normally requires measurement and continuous monitoring. Interruption of pump operation for any reason during the test may invalidate a portion or all of the pumping test results. We recommend that the pump be installed, tested to ensure proper operation, and calibrated a few days before commencement of the pumping test.

48. During the last few hours of the drawdown portion of the test our personnel may visit the site only to take measurements, and the pumping apparatus may be left unattended by us between measurements during that period. We will provide personnel to monitor the pump operation during these periods, as necessary.

49. The pumping for this test is expected to remove a significant quantity of water from the ground. This discharged water must be conducted away from the pumping well and all other wells in the vicinity so that it cannot return to the aquifer during the test.

50. As the appropriate pump to use during this test can vary, recommendations and arrangements for the pump to be used will be made separately prior to the test.

APPENDIX D

City of Mountain View, Calif. OFFICIAL RECEIPT

ORIGINATING DEPARTMENT ▶ ☐ FINANCE ☐ RECREATION ☐ POLICE ☐ FIRE ☐ LIBRARY ☑ OTHER MAINTENANCE

RECEIVED FROM JASCO CHEMICAL DATE 05/21/87

ACCOUNT CODE	DESCRIPTION	AMOUNT
	CHARGES FOR DISCHARGE INTO SANITARY SEWER OF CONTAMINATED GROUNDWATER FROM 5-23 TO 6-23-87	66 90
	TOTAL	66 90

CHECK NO. 25826 | CASH | BY Russell R. Frazer CASHIER | No. 74980

FORM F1 - 5 (12-82)

001147

City of Mountain View, Ca[illegible] [illegible]IAL RECEIPT

ORIGINATING DEPARTMENT ▶ ☐ FINANCE ☐ RECREATION ☐ POLICE ☐ FIRE ☐ LIBRARY ☒ OTHER MAINTENANCE

RECEIVED FROM VASCO CHEMICAL

DATE 03/31/87

ACCOUNT CODE	DESCRIPTION	AMOUNT
	SHORT TERM DISCHARGE OF CONTAMINATED GROUNDWATER TO SEWER SYSTEM.	170 65
	TOTAL	170 65

CHECK NO. 25453 | CASH | BY [signature] CASHIER | No. 74968

000147

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

0000147

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: -
Date Received: 03/02/87
Date Extracted: 03/09/87
Date Reported: 03/17/87
Project No. JCO-104A

Sample Number
7030004

Sample Description
Water, V-2

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein	-	trans-1,2-Dichloroethene	< 5.0
Acrylonitrile	-	1,2-Dichloropropane	< 5.0
Benzene	-	1,3-Dichloropropene	< 5.0
Bromomethane	< 5.0	Ethylbenzene	-
Bromodichloromethane	< 5.0	Methylene chloride	1,600
Bromoform	< 5.0	1,1,2,2-Tetrachloroethane	< 5.0
Carbon tetrachloride	< 5.0	Tetrachloroethene	< 5.0
Chlorobenzene	-	1,1,1-Trichloroethane	610
Chloroethane	80	1,1,2-Trichloroethane	< 5.0
2-Chloroethylvinyl ether	< 5.0	Trichloroethene	< 5.0
Chloroform	< 5.0	Toluene	-
Chloromethane	< 5.0	Vinyl chloride	< 5.0
Dibromochloromethane	< 5.0	1,2-Dichlorobenzene	< 5.0
1,1-Dichloroethane	1,200	1,3-Dichlorobenzene	< 5.0
1,2-Dichloroethane	< 5.0	1,4-Dichlorobenzene	< 5.0
1,1-Dichloroethene	110		

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

NOTE: Method 601 of the EPA was used for this analysis.

JASCO Chemical Corp.

P. O. DRAWER J, MOUNTAIN VIEW, CALIFORNIA 94042
Area Code 415 • Phone: 968-6005
P. O. BOX 715, SANTA ANA, CALIFORNIA 92701
Area Code 714 • Phone: 547-6951

MANUFACTURERS OF CHEMICAL SPECIALTIES

Mr. Thomas Frutchey, Maintenance Director
City of Mountain View Water Department
231 N. Whisman Road
Mountain View, CA 94043
February 10, 1987

DAT-2-87

0000147

Dear Mr. Frutchey:

Jasco wishes permission to discharge water from a monitoring well on its 1710 Villa Street facility to the sanitary sewer. The specifics are as follows:

1. Total gallons to be discharged is estimated to be 1,296,000.

2. The rate of discharge is estimated to be 5 GPM.

3. Analyses of the effluent per the attached analytical report. We anticipate the levels of the chemical to be reduced dramatically after the first 250,000 gallons of discharge.

4. The point of discharge will be per the attached engineering drawing.

5. We anticipate pumping for 6 months.

Please note as a point of reference that Jasco has checked its facility for any leakage and has found none. As a consequence we feel the quantity of chemicals per the attached analyses to be of a small quantity and as stated before will be reduced dramatically after the first 250,000 gallons of discharge.

We also plan to analyze the effluent at 100,000 gallon intervals per E.P.A. procedure 601.

Very truly yours,

Dan Thomas
General Manager

DT/cet

CCET: # 37.9
RECEIPT #

JASCO Chemical Corp.

P. O. DRAWER J, MOUNTAIN VIEW, CALIFORNIA 94042
Area Code 415 • Phone: 968-6005
P. O. BOX 715, SANTA ANA, CALIFORNIA 92701
Area Code 714 • Phone: 547-6951

MANUFACTURERS OF CHEMICAL SPECIALTIES

Mr. Thomas Frutchey, Maintenance Director
City of Mountain View Water Department
231 N. Whisman Road
Mountain View, CA 94043
February 17, 1987

DAT-3-87

0000147

Dear Mr. Frutchey:

As you know JASCO has requested permission to discharge water from a monitoring well on its 1710 Villa Street facility into the sanitary sewer.

In order to determine the viability of using the well (termed V-2), it is necessary to develop the well.

We request an interim 5 day time period in which to develop the well.

The specifics are as follows:

1. Total gallons to be discharged into the sanitary sewer system is estimated to be not more than 36,000.

2. The rate of discharge is estimated to be 2-5 GPM.

3. Analyses of the effluent is per the analytical report submitted on February 10, 1987 in our original request.

4. The point of discharge is per the engineering drawing submitted in our original request.

5. Pumping is to be for 5 days.

Very truly yours,

Dan Thomas

Dan Thomas
General Manager

DT/cet

No discharges shall be in a ~~GREATER~~ TOTAL concentration THAN 10 mg/L OF ALL CONTAMINANTS GREATER THAN

Approved through February 1987

Dan Frutchey 2-17-87

Cost: # 235.96 1/87
Receipt: # 74966

JASCO Chemical Corp.

P. O. DRAWER J, MOUNTAIN VIEW, CALIFORNIA 94042
Area Code 415 • Phone: 968-6005
P. O. BOX 715, SANTA ANA, CALIFORNIA 92701
Area Code 714 • Phone: 547-6951

MANUFACTURERS OF CHEMICAL SPECIALTIES

DAT-7-87 916-6329

Mr. Russ Frazer, Engineering Assistant
City of Mountain View Water Department
231 N. Whisman Road
Mountain View, CA 94043

March 4, 1987

0000147

Dear Mr. Frazer:

As we discussed by phone the well development approval you issued to Jasco for 5 days has not worked adequately due to equiptment limitations and availability. We have only been able to pump less than .6 gpm using a bladder pump.

We have now located a jet pump which is claimed to be able to pump the well at 3-5 gpm as we originally needed.

Jasco is requesting an extention for 30 days to try to develop the well per the following:

1. Total gallons to be discharged to the sanitary sewer system is estimated to be 260,000 diluted with fresh water so that no discharge will exceed total contaminants greater than 10 mg/l.

2. Rate of discharge is estimated at 3-5 gpm.

3. Analyses of the effluent is per the analytical report submitted on February 10, 1987 in our original request.

4. The point of discharge is per the engineering drawing submitted in our original request.

5. Pumping is to be for 30 days.

Very truly yours,

Daniel A. Thomas
General Manager

DT/cet

Approved through April 3, 1987.
Russ Frazer
3/6/87

JASCO Chemical Corp.

P. O. DRAWER J, MOUNTAIN VIEW, CALIFORNIA 94042
Area Code 415 • Phone: 968-6005
P. O. BOX 715, SANTA ANA, CALIFORNIA 92701
Area Code 714 • Phone: 547-6951

MANUFACTURERS OF CHEMICAL SPECIALTIES

Mr. Russ Frazer, Engineering Assistant
City of Mountain View Water Department
231 N. Whisman Road
Mountain View, CA 94043
March 12, 1987

DAT-9-87

0000147

Dear Mr. Frazer:

This letter is to confirm our phone conversation on 3/11/87.

As you may recall we discussed Jasco's original request for a 6 month permit to pump water to the sanitary sewer system from a well on its property. The request was made on February 10, 1987.

As I explained, the current monitoring well is being developed but does not seem to be capable to sufficient volume. We plan to replace the current 2" well with a 6" well.

We are planning to do so based on your positive feeling that Jasco will be granted the permit.

I draw your attention to the letter sent to Jasco from the California Regional Water Quality Control Board on January 26, 1987. In this letter a statement was made relative to pumping the contaminated water as a cleanup method.

We will not discharge any water to the sewer system that exceeds 10 mg/L of contaminants.

Please see what can be done to expedite issuing of the permit.

Regards,

Dan Thomas

Dan Thomas
General Manager

DT/cet

PAID: RECEIPT #

JASCO Chemical Corp.

P. O. DRAWER J, MOUNTAIN VIEW, CALIFORNIA 94042
Area Code 415 • Phone: 968-6005
P. O. BOX 715, SANTA ANA, CALIFORNIA 92701
Area Code 714 • Phone: 547-6951

MANUFACTURERS OF CHEMICAL SPECIALTIES

Mr. Thomas Frutchey, Maintenance Director
City of Mountain View Water Department
231 N. Whisman Road
Mountain View, CA 94043
March 31, 1987

DAT-11-87

0000147

Dear Mr. Frutchey:

This letter is to request an additional 45 day permit to continue the discharge to the sanitary sewer system from April 4, 1987 to May 18, 1987. This request is an interim request pending your approval for a 6 month permit submitted to your attention on February 2, 1987.

The specifics are:

1. Total gallons to be discharged into the sanitary sewer system is estimated to be 162,000.

2. The rate of discharge is estimated to be 2.5 gpm.

3. Analysis of the effluent is per attached analyses. The total quantity of contaminants is not more than 4 mg/L.

4. The point of discharge is per the engineering drawing submitted on our original request dated February 2, 1987.

5. Pumping is to be for 45 days from April 4, 1987 to May 18, 1987.

Very truly yours,

Dan Thomas

Dan Thomas
General Manager

DT/cet

Approved through
May 22, 1987
Dan Thomas
3/31/87

COST: # 66.90
RECEIPT #: 74980

JASCO Chemical Corp.

P.O. DRAWER J, MOUNTAIN VIEW, CALIFORNIA 94042

Area Code 415 • Phone: 968-6005

MANUFACTURERS OF CHEMICALS AND PAINT SPECIALTIES

DAT-24-87

May 21, 1987

0000147

Mr. Thomas Frutchey, Maintence Director
City of Mountain View Water Department
231 Whisman Road
Mountain View CA 94043

Dear Mr. Frutchey;

This letter is to request a 30 day permit to discharge water from Jasco's well called V-4. The dates would be from May 23, 1987 through June 23, 1987.

The purpose is to determine the zone of influence of the potential extraction well on the new monitoring wells which were installed early in May.

Specifics are:

1. Total gallons to be discharge into the sanitary system is to be 63,504 gallons.

2. The rate of discharge is 1.47gpm.

3. Analyses of effluent is per attached. The total quantity of contaminants is less than 4 mg/L.

4. The point of discharge is per the engineering drowing submitted on our original request dated February 2, 1987.

5. Pumping is to be for 30 days from May 23, 1987 through June 23, 1987.

Approved through June 23, 1987
OK for continuous 24 hr. pumping
@ 1.47 GPM
Dan Frutchey
5-21-87

Regards,

Dan Thomas

Dan Thomas
General Manager

DT/jal

JASCO Chemical Corp.

P. O. DRAWER J, MOUNTAIN VIEW, CALIFORNIA 94042
Area Code 415 • Phone: 968-6005
P. O. BOX 715, SANTA ANA, CALIFORNIA 92701
Area Code 714 • Phone: 547-6951

MANUFACTURERS OF CHEMICAL SPECIALTIES

0000147

DAT-27-87

June 17, 1987

Mr. Thomas Frutchey, Maintenance Director
City of Mountain View Water Dept.
231 Whisman Road
Mountain View CA 94043

Dear Mr. Frutchey:

This letter is to request a long term permit to discharge water from Jasco's well, called V-4, to the sanitary sewer system.

SPECIFICS ARE:

1. Total gallons to be read from meter on discharge line beginning on 6/24/87.

2. The rate of discharge averages 1.25 GPM.

3. The analyses of the effluent is per the attached lab report. The long term permit is for 1 Mg/L with a 60 day variance not to exceed 2.3 Mg/L (6/24/87 through 8/22/87).

4. The point of discharge is per the engineering drawing submitted with our original request dated Feb. 12, 1987.

5. Duration of permit is to 12/31/87.

Regards,

Dan Thomas

DT/jal
cc: D. Maez, City of Palo Alto

APPENDIX E

Wahler Associates

Geotechnical and Water Resources Engineering

March 13, 1987
Project JCO-104H

Ms. Diane Heinze
California Regional Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, CA 94607

Dear Ms. Heinze:

This letter is submitted on behalf of Jasco Chemical Corporation to comply with your January 26, 1987 request for quarterly reports to be submitted that include monthly water level measurements from all Jasco wells and a potentiometric surface map.

Three episodes of water level measurements were performed on monitoring wells V-1, V-2, and V-3, installed by Questa Engineering. The water level measurements were taken on December 17, 1986, January 14, 1987, and February 20, 1987. These data are summarized in Table 1. The February 20, 1987 data were used to construct a potentiometric surface map for the shallow or 'A' aquifer beneath the Jasco site (Figure 1). An accurate potentiometric surface and hence accurate estimate of ground water flow direction could not be made due to close proximity of monitoring wells V-1 and V-3. Based on the data at hand, ground water flow in the 'A' aquifer is towards the north-northeast, following the natural slope of the ground surface. The 'A' aquifer horizontal hydraulic gradient values for December, January and February are also presented in Table 1. Lastly, hydrographs for the three monitoring wells installed thus far at Jasco are presented on Figure 2.

If you have any questions regarding the data presented in this report, do not hesitate to call James L. Jaffe at (415) 788-2600.

Sincerely,

WAHLER ASSOCIATES

Bob Breynaert
Hydrogeologist

BB:1

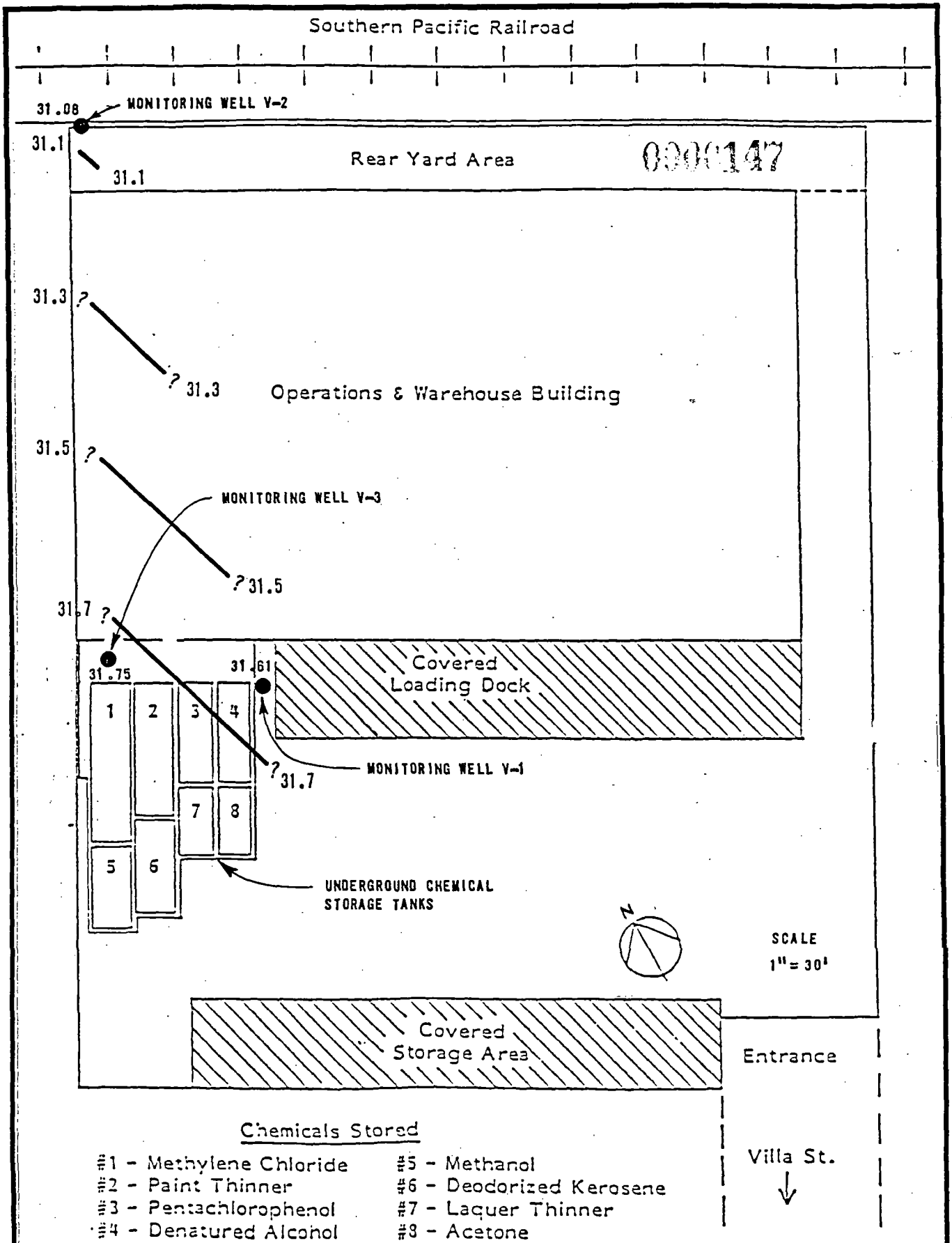
cc: James L. Jaffe

TABLE 1

0000147

WATER ELEVATION AND APPROXIMATE HORIZONTAL
GROUND WATER GRADIENT
'A'- AQUIFER MONITORING WELLS

Date	V-1	V-2	V-3	Gradient
December 17, 1987	31.31	30.85	31.37	0.005
January 14, 1987	31.28	30.07	31.28	0.006
February 20, 1987	31.61	31.08	31.75	0.008

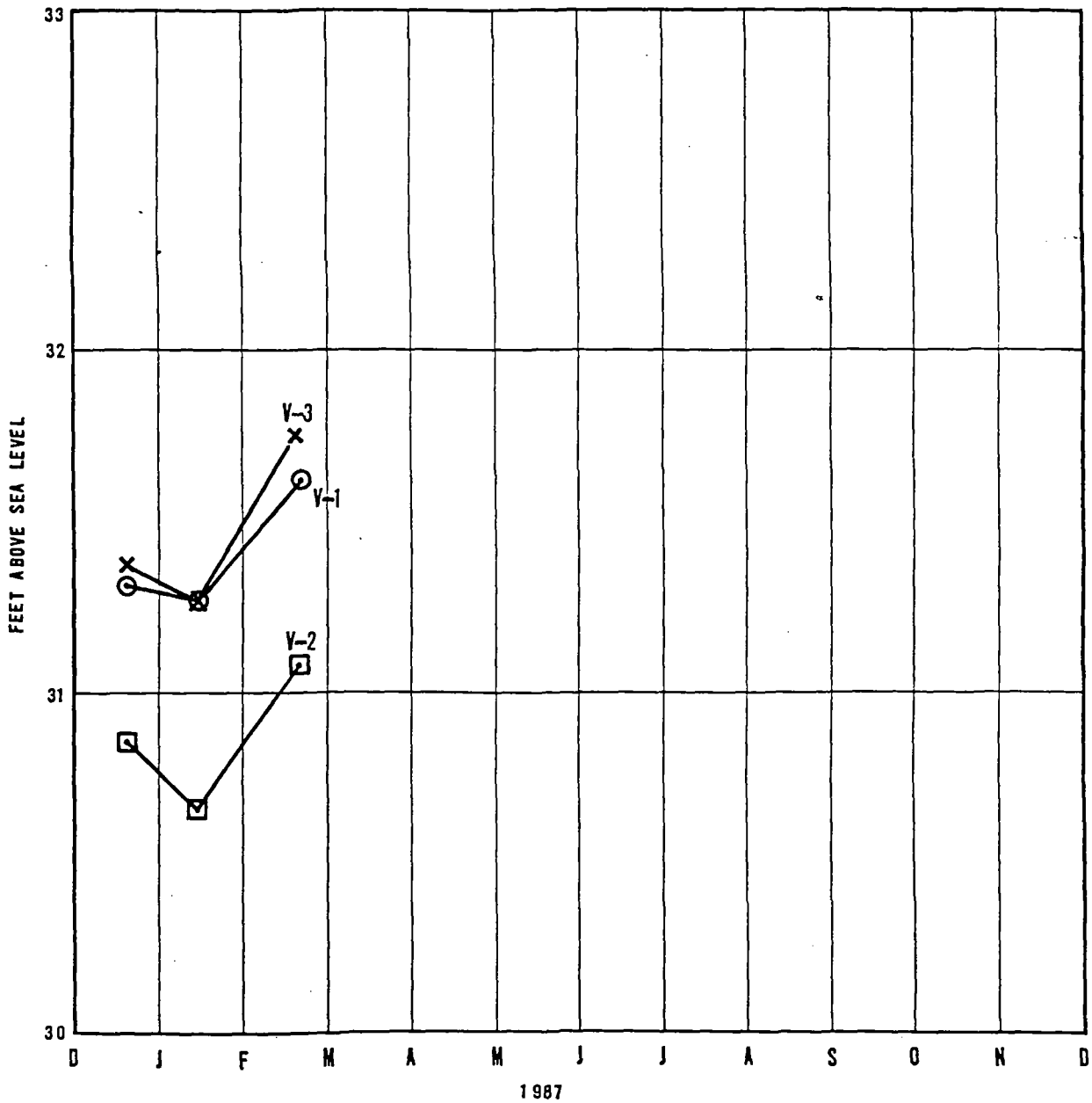


Wahler Associates	JASCO CHEMICAL COMPANY QUATERLY REPORT GROUND WATER ELEVATIONS PALO ALTO • CALIFORNIA	POTENTIOMETRIC SURFACE "A" AQUIFER FEBRUARY 20, 1987		
		PROJECT NO.	DATE	FIGURE NO.
		JCO-104H	MARCH 1987	1

OZALID

154W

0000147



Wahler Associates	JASCO CHEMICAL COMPANY QUATERLY REPORT GROUND WATER ELEVATIONS	WATER ELEVATION "A" AQUIFER MONITORING WELLS 12/1986-2/1987		
		PROJECT NO.	DATE	FIGURE NO.
PALO ALTO • CALIFORNIA		JCO-104H	MARCH 1987	2

·OZALID

Wahler Associates

Geotechnical and Water Resources Engineering

0000147

June 11, 1987
Project JCO-104H

Mr. Steven Morse
South Bay Division Chief
California Regional Water Quality
Control Board
1111 Jackson Street, Room 6040
Oakland, California 94607

Subject: Jasco Chemical Corporation, 2189-8210

Dear Mr. Morse:

This report is submitted on behalf of Jasco Chemical Corporation to comply with your January 26, 1987 request for quarterly reports to be submitted that include monthly water level measurements from all Jasco wells, and a potentiometric surface map.

The elevations of all wells at the Jasco study area, including those installed previous to Wahler Associates' involvement with the case, were surveyed as part of Phase I hydrogeologic investigation. The elevations are given in Table 1. Table 2 includes the water elevation measurements that have been taken since the last quarterly report was submitted on March 13, 1987. In addition, the water elevations that were submitted as part of the March 13, 1987 report have been corrected given the new well elevation data and are also presented in Table 2.

The ground water elevations measured on May 27, 1987 and June 3, 1987 were taken while ground water was being removed from well V-4. The ground water elevation data from May 5, 1987 were taken after ground water removal had been stopped for 9 days. Lastly, the June 9, 1987 elevations were taken after pumping from well V-4 had been stopped for 5 hours.

1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303 • Telephone Number (415) 968-6250
Telex Number 4998623

0000147

Figure 1 shows the locations of all A-Aquifer and B_1-Aquifer monitoring wells. Figures 2, 3, and 4 present the A-Aquifer potentiometric surface as measured on February 20, 1987, May 5, 1987, and May 22, 1987. The February 20, 1987 data are revised from those submitted as part of the March 13, 1987 report given the new well elevation data.

The February 20, 1987 water elevation data indicate the pre-pumping direction of ground water flow in the A-Aquifer to be to the north-northeast. All of the later ground water elevation measurements show the effects of ground water removal from well V-4 (Figures 3 and 4).

If you have any questions regarding the data presented in this report, do not hesitate to call.

Sincerely,

WAHLER ASSOCIATES

Robert G. Breynaert
Project Manager

BGB:11

cc: James L. Jaffe
Dan Thomas

TABLE 1

GROUND SURFACE ELEVATIONS

Well No.	Elevation (ft)
V-1	58.29
V-2	57.38
V-3	57.60
V-4	57.40
V-5	58.65
V-6	58.10
V-7	56.60
*I-1	58.30

*B_1-Aquifer well.

TABLE 2

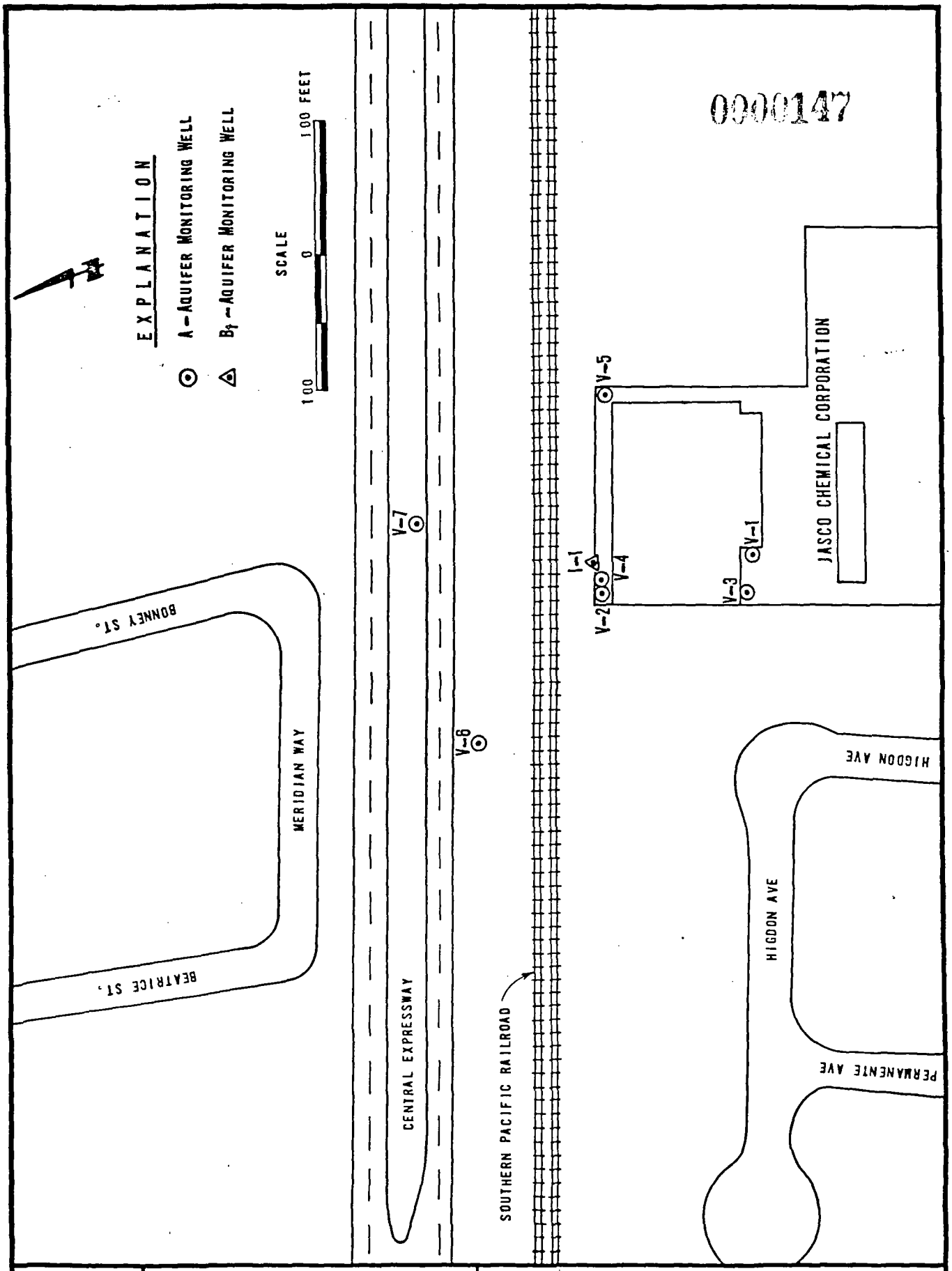
GROUND WATER ELEVATIONS: A AND B_1 AQUIFER WELLS

Well Number	12-17-86	1-14-87	2-20-87	4-6-87	5-5-87	5-22-87	6-3-87	6-9-87
V-1	34.97	34.94	35.27	35.27	35.31	35.17	35.24	34.61
V-2	34.75	34.57	34.98	a	34.74	33.03	33.11	34.53
V-3	34.88	34.79	35.26	35.07	35.24	35.03	35.04	35.12
V-4	--	--	--	32.45	34.72	22.12	23.11	33.38
V-5	--	--	--	--	34.80	34.21	33.28	33.25
V-6	--	--	--	--	35.61	34.00	34.04	34.04
V-7	--	--	--	--	34.06	33.81	33.90	33.93
I-1*	--	--	--	--	34.67	33.69	33.72	33.78

* - B_1-Aquifer Well

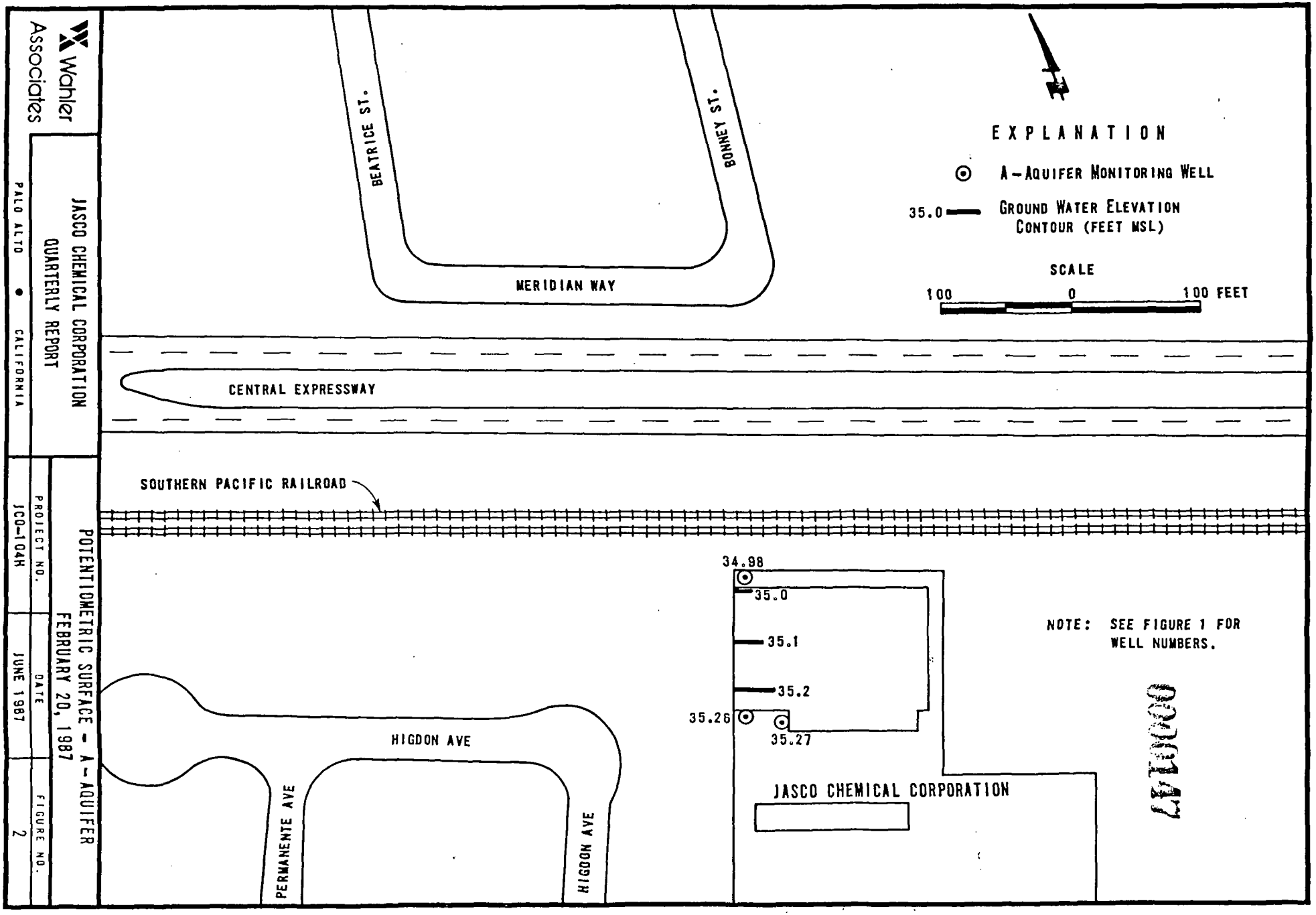
a - Well was used for ground water extraction

-- Well not installed at time measurements were taken



Wahler Associates	JASCO CHEMICAL CORPORATION PHASE II PROPOSAL	LOCATION OF A AND B_1 MONITORING WELLS		
PALO ALTO • CALIFORNIA		PROJECT NO.	DATE	FIGURE NO.
		JCO-104H	JUNE 1987	1

154W



Wahler Associates

PALO ALTO • CALIFORNIA

JASCO CHEMICAL CORPORATION

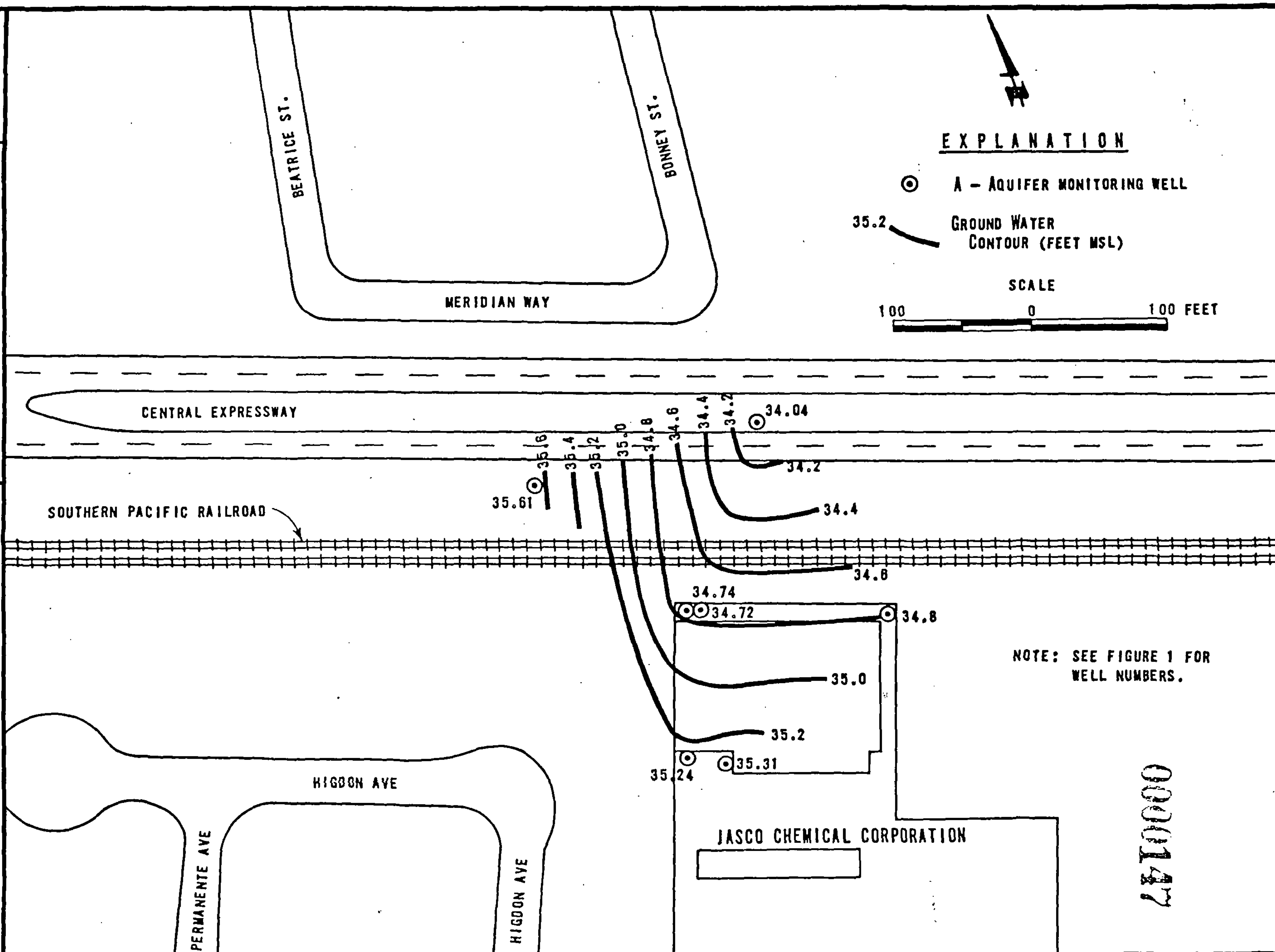
QUARTERLY REPORT

POTENTIOMETRIC SURFACE - A-AQUIFER

FEBRUARY 20, 1987

PROJECT NO.	DATE	FIGURE NO.
JCO-104H	JUNE 1987	2

154W



Wahler Associates

JASCO CHEMICAL CORPORATION
QUARTERLY REPORT

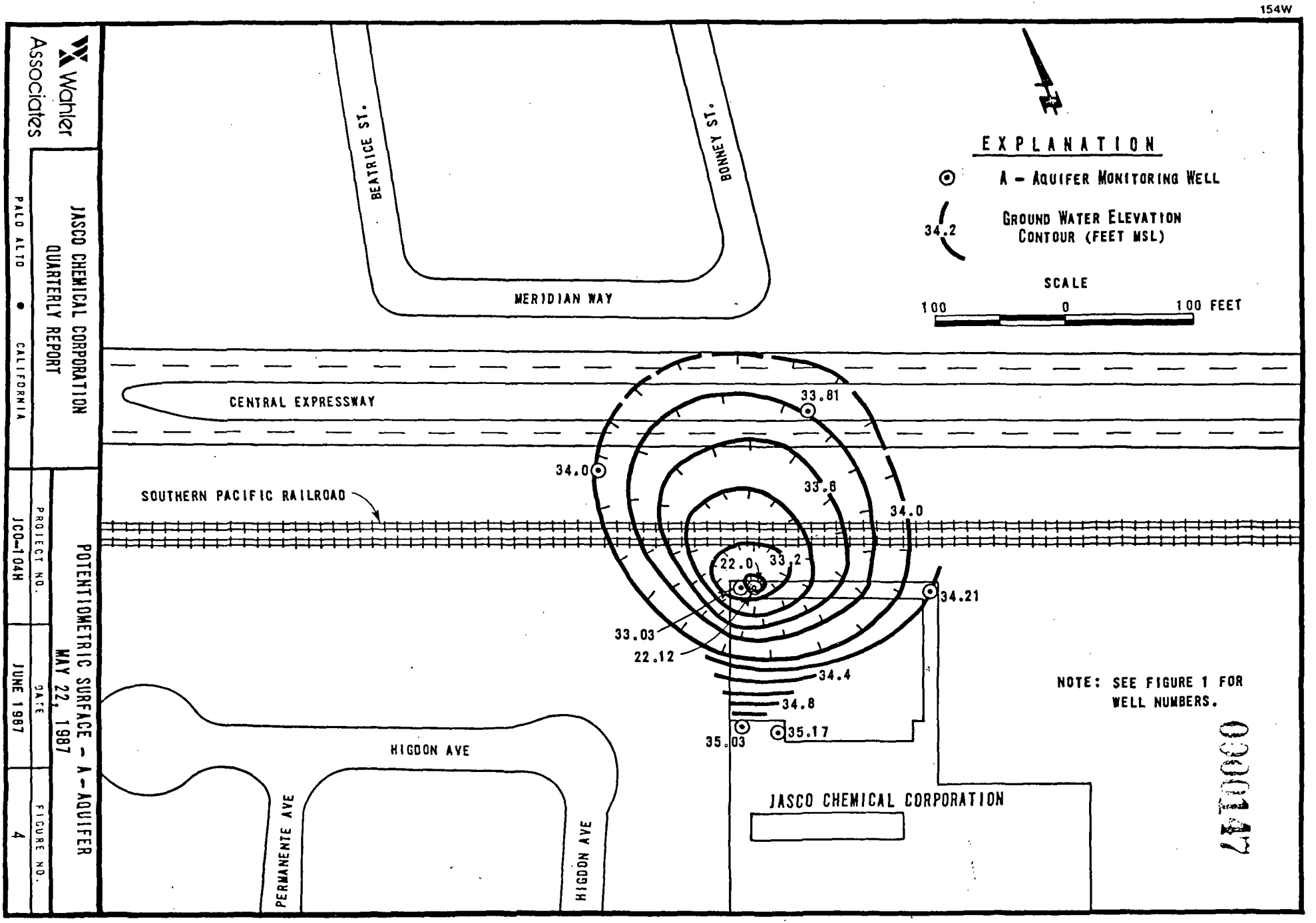
PALO ALTO • CALIFORNIA

POTENTIOMETRIC SURFACE - A-AQUIFER
MAY 5, 1987

PROJECT NO.	DATE	FIGURE NO.
JCO-104H	JUNE 1987	3

OZALID

0001437


154W
BEATRICE ST.
BONNEY ST.
MERIDIAN WAY
EXPLANATION
A - AQUIFER MONITORING WELL
34.2
GROUND WATER ELEVATION CONTOUR (FEET MSL)
SCALE
100 0 100 FEET
CENTRAL EXPRESSWAY
SOUTHERN PACIFIC RAILROAD
33.81
34.0
33.6
34.0
22.0
33.2
34.21
33.03
22.12
34.4
34.8
35.03
35.17
NOTE: SEE FIGURE 1 FOR WELL NUMBERS.
HIGDON AVE
PERMANENTE AVE
HIGDON AVE
JASCO CHEMICAL CORPORATION
Wahler Associates
PALO ALTO • CALIFORNIA
JASCO CHEMICAL CORPORATION
QUARTERLY REPORT
POTENTIOMETRIC SURFACE - A-AQUIFER
MAY 22, 1987
PROJECT NO.
JCO-104H
DATE
JUNE 1987
FIGURE NO.
4
OZALID

APPENDIX F

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

RECEIVED JUN 9 1987

006147

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/29/87
Date Received: 05/29/87
Date Reported: 06/03/87
Project No. JCO-104H

Sample Number	Sample Description
7052028	Water, V-3

ANALYSIS

Arsenic, mg/L	< 0.01
Barium, mg/L	< 0.5
Bicarbonate Alkalinity, mg/L	540
Cadmium, mg/L	< 0.01
Calcium, mg/L	550
Carbonate Alkalinity, mg/L	< 0.50
Chloride, mg/L	540
Chromium, mg/L	< 0.005
Color, color units	30
Copper, mg/L	0.02
Fluoride, mg/L	2.2
Hardness, mg/L	1,900
Hydroxide Alkalinity, mg/L	< 0.001
Iron, mg/L	0.56
Lead, mg/L	< 0.005
Magnesium, mg/L	130
Manganese, mg/L	4.5
Mercury, mg/L	< 0.001
Nitrate as NO_3, mg/L	< 1
Odor, threshold Number	6.0
pH	7.0
Selenium, mg/L	< 0.01
Silver, mg/L	< 0.01
Sodium, mg/L	48
Total Dissolved Solids, mg/L	3,100
Specific Conductance, µmhos/cm	3,800
Sulfate, mg/L	230
Surfactants, mg/L	0.05
Turbidity, NTU	130
Zinc, mg/L	< 0.05

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

sls

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

0000147

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 05/29/87
Date Received: 05/29/87
Date Reported: 06/03/87
Project No. JCO-104H

BACTERIOLOGICAL ANALYSIS

Sample Number	Sample Description	Total Coliform Bacteria MPN./100 mL	Fecal Coliform Bacteria MPN./100 mL
7052028	Water, V-3	17	4

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

mpr

WATER SAMPLING PARAMETERS

DATE: 3-29-87

PROJECT NO.: JCO-104H

LOCATION: JACO

SAMPLERS: PFS

SAMPLE ID: U-3

3BV: 32 gal

0000147

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	Eh (mV)	COND. (micromhos)	DO mg/l	Q GPM	BOH
22.56	5	215p	22.6	7.07	-054	3200			
28.41	15	230p	20.9	7.51	-060	2750			
31.17	30	2'45p	20.8	7.33	-057	2500			
31.01	40	300p	19.7	7.40	-060	2700			

TIME SAMPLED:

COMMENTS:

SAMPLES TAKEN	
	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
	EPA 601
	EPA 802
X	General Mineral
X	General Physical
X	Inorganic Chemical

DEL/ECOL System

Wahler Associates

Wahler Associates

WA Project Number: JCO-1041T

Page 1 of 2

0000147

Field Sample Chain of Custody Record

Source of Sample(s) Mountain View, CA

Collector B. Braynaert

Address _____

Affiliation Wahler Assoc.

_____

Address 1023 Corporation Way
Palo Alto, CA 94303

Phone ( )

Report to (1) _____

Phone 415-968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached
		/ /				Analysis Request form
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Ti
1.	[signature]	5 Feb 87	600pm	[signature]	5 Feb 87	6:
2.		/ /			/ /	
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collec and given to the Laboratory when samples are delivered.

(2) e.g. water, sludge, soil, etc.

(3) If any samples are not intact at time of transfer, please describe on the back of thi form.

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

0000147

ANALYSIS REQUEST FORM

Sequoia Date Sample Shipped 5-29-87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
JCO-104H,U-3	H2O	1 gallon Container	General Mineral General Physical Inorganic Chemical
JCO-104H,U-3	H2O	1 sterile Container	① Total Coliform ② If Coliform found Then fecal coliforms

Comments 24 Hour Turnaround!!!!!!!!
RESULTS by Monday JUNE 1, 1987!

Contact Person Bob Braymer (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cexanar

SEQUOIA Analytical Laboratory
2549 Middlefield Road
Redwood City, CA 94063 • (415) 364-9222

0000147

Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303
Attn: Bob Breynaert

Date Sampled: 06/03/87
Date Received: 06/03/87
Date Extracted: 06/03/87
Date Reported: 06/04/87
Project No. JCO-104H

Sample Number	Sample Description
7060142	Water, I-1

PRIORITY POLLUTANTS

VOLATILE ORGANIC COMPOUNDS
results in ppb

Acrolein	<100	trans-1,2-Dichloroethene	< 0.5
Acrylonitrile	<100	1,2-Dichloropropane	< 0.5
Benzene	< 0.5	1,3-Dichloropropene	< 0.5
Bromomethane	< 0.5	Ethylbenzene	< 0.5
Bromodichloromethane	< 0.5	Methylene chloride	< 0.5
Bromoform	< 0.5	1,1,2,2-Tetrachloroethane	< 0.5
Carbon tetrachloride	< 0.5	Tetrachloroethene	< 0.5
Chlorobenzene	< 0.5	1,1,1-Trichloroethane	< 0.5
Chloroethane	< 0.5	1,1,2-Trichloroethane	< 0.5
2-Chloroethylvinyl ether	< 0.5	Trichloroethene	< 0.5
Chloroform	< 0.5	Toluene	< 0.5
Chloromethane	< 0.5	Vinyl chloride	< 0.5
Dibromochloromethane	< 0.5	1,2-Dichlorobenzene	< 0.5
1,1-Dichloroethane	3.9	1,3-Dichlorobenzene	< 0.5
1,2-Dichloroethane	< 0.5	1,4-Dichlorobenzene	< 0.5
1,1-Dichloroethene	< 0.2		

SEQUOIA ANALYTICAL LABORATORY

Arthur G. Burton
Laboratory Director

NOTE: Method 624 of the EPA was used for this analysis.

Wahler Associates

WA Project Number: JC0104H

Page 1 of 2

Field Sample Chain of Custody Record

000147

Source of Sample(s) _____

Address _____

_____

Phone ( ) _____

Report to (1) _____

Collector Paul Schmidt

Affiliation Wahler Assoc

Address 1023 Corporation Way
Palo Alto, Ca. 94033

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				
		/ /				See Attached
		/ /				Analysis Request
		/ /				Form
		/ /				
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	Time
1.	Paul Schmidt	6 13 87	10:40	Carolyn Anderson	613187	10:40
2.	Carolyn Anderson	613187	11:11 AM	Frank Winfield	613187	11:11
3.		/ /			/ /	

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0000147

ANALYSIS REQUEST FORM

Sequoia Lab Date Sample Shipped 6-3-87

WAHLER ASSOCIATES will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
I-1	H_2O	VOA	EPA 624

Comments 24 hour turn-around please!

Contact Person BOB BREYNAERT (415) 968-6250
Name Telephone

Lab Project Manager (if known) Scott Cocanour

WATER SAMPLING PARAMETERS

000147

DATE: 6-3-87

PROJECT NO.: JC010411

LOCATION: JASO

SAMPLERS: PFS

SAMPLE ID: I-1

3BV: ~12.0 gal

WATER LEVEL	GALLONS REMOVED	TIME	TEMP. C°	pH	Eh (mV)	COND. (micromhos)	DO mg/l	Q GPM	BOH
24.65	0	845	20.4	7.40		1300			
24.65	5	900	19.2	7.16		1200			
24.65	10	910	19.8	7.24		1200			
24.65	12	915	19.5	7.18		1100			

TIME SAMPLED:

COMMENTS:

SAMPLES TAKEN	
X	EPA 624
	EPA 625
	EPA 608
	METALS
	CYANIDE
	CHLOR., SULF., etc.
	ASBESTOS
	EPA 601
	EPA 602

Wahler Associates